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JULY, 1954

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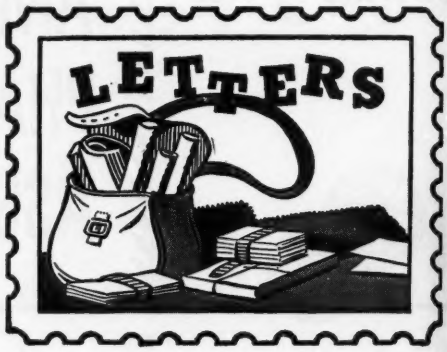

Opposes Longer Pharmacy Course

To the Editor:

I have read the news item printed in the July 26th issue of *Drug Topics*, in which it is reported that you have written a letter to the deans of the pharmacy schools throughout the country in which you state that enrollments will not be affected by the adoption of the five-year pharmacy course idea. I am sure that you are sincere in making such a statement and in the arguments you make in support of the five-year course. However, I am just as sincere when I say that I think you are mistaken in your views regarding the five-year course. I feel that if you were as close to the "grass roots" of pharmacy as I have been for twenty-nine years, you would see an entirely different picture from what you now have.

My town is a typical small rural community, with its schools and churches, and other community organizations. The high-school graduates from twenty-five to forty students each year. During the last thirty years, approximately twenty of these graduates have selected pharmacy as their vocation. I have talked to many of these boys and girls during the period that they were trying to make their decisions, and I am convinced that the length of time involving pharmacy school and the economics connected with the educational requirements had an influence in their decisions to enter the profession of pharmacy. What is true of my town is true of about every town in North Carolina. I am convinced that an extension of the requirements to five years would materially affect the numbers who will enter the profession in our state.

I can't agree with those who say that the graduates of our schools of pharmacy under the four-year course do not meet the requirements that are expected of a professional man in his community. I think I am reasonably familiar with the status of pharmacists in North Carolina and I know that from the standpoint of education, the pharmacist demands and receives the same respect as any other professional man in the community. You will find the pharmacist one of the most active citizens in his

(Continued on page 442)

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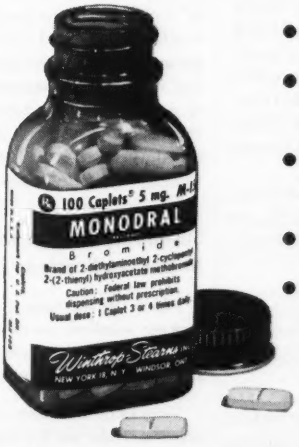

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Members of the American Pharmaceutical Association are invited to submit their professional problems to The Journal, 2215 Constitution Ave., N. W., Washington 7, D. C., giving all pertinent details in your first letter.

Amytal, Belladonna, and Theptine Elixir

What compounding procedure can be used to avoid the precipitation in the following prescription:

℞	*Sodium Amytal*	*1.5*
	Belladonna tincture	*10.0*
	Theptine elixir q. s.	*240.0*

—M. G., New York.

Sodium Amytal reacts with the acid Theptine elixir to liberate Amytal (amobarbital) which is precipitated. The low alcohol content (10%) of Theptine elixir does not hold the high-alcohol-soluble belladonna extractives in solution. Theptine elixir is a definite therapeutic agent as well as the vehicle for the other prescribed ingredients. The following procedure will replace as little of the elixir as possible. Dissolve 1.4 Gm. of Amytal in a mixture of 5 cc. of Tween 20 and 15 cc. of alcohol. Add the belladonna tincture to this mixture, then add the Theptine elixir in small portions, with stirring, to make 240 cc.

If the physician does not agree to the alteration, add a suspending agent, such as tragacanth (1%), to the prescribed ingredients and dispense as a "shake" mixture.

Schamberg's Lotion

Can you supply any information about Scharberg's Lotion?—E. B. S., Canada.

It is very probable that the preparation you seek is Schamberg's Lotion. The following formulas appear in "Remington's Practice of Pharmacy," 10th ed., p. 1487.

Schamberg's Lotion

Menthol	0.3
Phenol	2.0
Zinc oxide	10.0
Lime Water	
Olive oil of each *q. s.*	
To make	120.0

Mix the first three ingredients with 60 cc. of olive oil and gradually add the lime water with constant agitation.

Calmitan Lotion (Schamberg)

Sodium phenolate	8
Sodium biborate	8
Triethanolamine	6
Distilled water, a sufficient quantity	
Oleic acid	16
Light liquid petrolatum	170

Dissolve the first three ingredients in sufficient water to make 200 cc., using heat if necessary. Dissolve the oleic acid in the petrolatum and mix the two solutions until emulsified. Perfume with 2 drops of bergamot oil and 1 drop of lemon oil to each 120 cc.

Interstate Prescriptions for "Legend" Drugs

Is there any Federal Law regarding the filling of prescriptions for legend drugs from one state to another? In other words, can a prescription for a legend drug written in Virginia be filled in Illinois?—H. A., Illinois.

The Federal Food, Drug and Cosmetic Law as amended (Durham-Humphrey amendment) makes it illegal to dispense a drug bearing the "prescription legend" without receiving a prescription written by a qualified practitioner. The same law would apply to a prescription written in one state and presented to a pharmacist in another state. The pharmacist would be expected to establish the facts that the prescription is an original prescription (not a copy) and he should be satisfied that the signature is that of a qualified practitioner. You might check with the Secretary of your State Board of Pharmacy as to whether the State law permits any deviation from the above requirements.

Streptomycin and Dihydrostreptomycin in Ear Medications

Please let me have any available information concerning solution strengths of streptomycin and dihydrostreptomycin for use in the ear. My physicians seem unsure about this.—J. B. K., Pennsylvania.

Very little has been reported on the topical use of these antibiotics for ear infections. L. L. Litche, *Eye, Ear, Nose & Throat Monthly*, **32**, 203(April, 1954), used streptomycin 100 mg. per 1 cc. of distilled water to treat tuberculous otitis media. He instilled 1 cc. of the solution daily, with good results in one case after the total administration of 1.5 Gm. (in 15 days) of the drug.

The confusion might arise from the low concentration, 2.5 mg. of dihydrostreptomycin, in Dihydrostreptomycin Otic with Bristamin. However, the latter product contains other antibacterial agents.

Oil of Cadeberry

What is oil of cadeberry and where can it be obtained?—L. N. B., New Jersey.

Oil of Cadeberry is synonymous with Oil of Juniper Berries, a terpeneless oil, which may be obtained from Magnus, Mabee and Reynard, Inc., 16 Destrosses St., New York.

Leiner's Lotion

Do you have any information on Leiner's lotion?—A. L. S., Kansas.

The following formula for Leiner's lotion is used at the University of Minnesota Hospitals [see THIS JOURNAL, **8,** 380(1947)]:

Zinc oxide	12
Talcum	12
Glycerin	12
Alcohol	8
Magma bentonite 5%	48
Distilled water *q. s.*	120

The original formula did not include magma bentonite.

Another modification of the suspending vehicle for Leiner's lotion is given in THIS JOURNAL, **13**, 550 (Aug., 1952); see last formula in Table 1, page 551.

Warfarin as Anticoagulant

Would you please advise us of any warfarin preparations for human use?—A. L. S., Kansas.

"Experience with a new intravenous coumarin anticoagulant (warfarin, sodium derivative)" was reported in *Proceedings Staff Meetings Mayo Clinic,* **28,** 489(1953); see THIS JOURNAL, **14,** 684(1953). The warfarin injection containing 7.5 mg. of [3-(α-phenyl-β-acetylethyl)-4-hydroxycoumarin, sodium derivative] in each cc. of aqueous solution was supplied by Endo Products, Inc., Richmond Hill 18, N. Y.

Sodium Alkyl Sulfate Suppositories

Where can one obtain sodium alkyl sulfate or rectal suppositories containing this material?—E. J. B., W. Va.

According to *J.A.M.A.*, **155,** 945(July 3, 1954), rectal suppositories useful in the treatment of rectal itching following the use of chlortetracycline (Aureomycin) or oxytetracycline (Terramycin) contain in each suppository: sodium alkyl sulfate, 0.6 Gm., and enough cacao butter to make 3 Gm.

A frequently used sodium alkyl sulfate is sodium lauryl sulfate U. S. P. XIV. It is available from many drug suppliers. The suppository dosage form should present no particular problem to the compounder.

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RECENT

PROGRESS IN MEDICINE

Terramycin (Oxytetracycline) Combats Abortion Infections

Three New York City physicians report that among 50 patients treated for incomplete abortion by intramuscular injection of oxytetracycline, 100 mg. twice daily, results were as satisfactory after curettage as in a penicillin-treated group. They report that control of infection was also satisfactory in two cases of post-abortal peritonitis and three cases of threatened abortion with infection. In combating overwhelming infection, intramuscular oxytetracycline was used with penicillin and streptomycin with favorable results in two of three cases. Seven patients receiving intramuscular oxytetracycline complained of pain at the site of injection with marked pain in only one case.

[Lattarulo, D., Friedman, S., and Blinick, G., *Antibiotics & Chemotherapy*, **4**, 566 (May, 1954).]

Pyloric Mucosa (Intrinsic Factor) and Vitamin B_{12} in Pernicious Anemia

Clinical data reported by a Copenhagen (Denmark) physician show that dried pyloric mucosa (intrinsic factor) from pig stomach administered alone in oral doses of 100–200 mg. three times daily exerts a definite but slight antianemic effect. When the same doses of the pyloric mucosa were administered with 5 mcg. of vitamin B_{12} a strong antianemic effect was obtained. The vitamin B_{12} in this dosage was inactive when administered orally without the intrinsic factor material. The physician recommends that, in order to be sure of adequate dosage, the equivalent of 300 mg. of dried pyloric mucosa and 30 mcg. of vitamin B_{12} should be administered for the initial doses. The maintenance dose has not been fixed.

[Meulengracht, E., *Brit. Med. J.*, **4866**, 838 (April 10, 1954).]

Value of Mephobarbital as Anticonvulsant

Mephobarbital (Mebaral) was found to be the least toxic of the anticonvulsants administered to a group of 363 patients, it is reported by Dr. Harold Berris. He states that mephobarbital is superior to phenobarbital as an anticonvulsant. The 363 patients in the study, ranging in age from 16 to 70, were suffering from all types of convulsive disorders, including grand mal, petit mal, psychomotor, diencephalic, and focal. Over 90 per cent were treated with mephobarbital alone, or in combination with other compounds. Dr. Berris reports that mephobarbital was effective against all types of seizures. When used alone with a series of 36 cases, it resulted in excellent or good control in 19 of 21 patients with grand mal seizures; and in 11 of the remaining 15 patients suffering from various types of seizures. In addition to its ability to control seizures, the incidence of toxicity in 320 patients was 4.7 per cent. When used in conjunction with other anticonvulsants, better seizure control was usually obtained.

[Berris, H., *Neurology*, **4**, 116(1954).]

New Plasma Volume Expander

Experimental effectiveness of cross-linked glutamyl polypeptide as a blood plasma volume expander has been favorably reported by Drs. M. Bovarnick, B. Kessler, and D. O'Connell of the Veterans Administration. Straight-chain peptide, obtained from the culture of *B. subtilis*, is converted to the active material, which can be autoclaved, does not gel at freezing temperatures, and is stable as a powder or in solution. The molecular size is controllable. Further investigations are being conducted.

(Continued on page 428)

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and	It's very palatable, smooth and creamy; no chalky taste or oily feel.

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Formula: Each 30 cc. (1 fl. oz.) contains:

Hyoscyamine sulfate	0.1037 mg.	Kaolin (90 gr.)	6.0 Gm.
Atropine sulfate	0.0194 mg.	Pectin (2 gr.)	130.0 mg.
Hyoscine hydrobromide	0.0065 mg.	Dihydroxy aluminum aminoacetate (7½ gr.)	0.5 Gm.
Phenobarbital (¼ gr.)	16.2 mg.	Sodium benzoate (Preservative)	60.0 mg.

Warning: May be habit forming

Alcohol 3.8 per cent

Supplied: Pale green, aromatized suspension in amber bottles of 6 fl. oz.

Dosage: Adult – for diarrheas, 2 tablespoonfuls at once and 1 or 2 tablespoonfuls after each stool; for other conditions (e.g. gastritis, enteritis, colitis, gastrointestinal upsets), 1 tablespoonful every 3 hours as necessary. Children – 2 teaspoonfuls at once and 1 or 2 teaspoonfuls thereafter as above.

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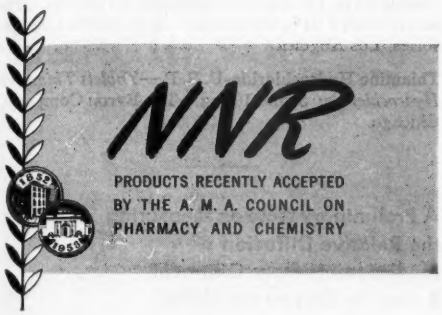

N.N.R. MONOGRAPH ABSTRACTS

[For detailed monographs on the following items see THIS JOURNAL, *Scientific Edition*, **43**, II, III, V (July, 1954).]

ERYTHROMYCIN.—Ilotycin (Lilly).—An antibiotic isolated from the elaboration products of *Streptomyces erythreus*, when grown by deep culture in suitable mediums. Erythromycin is effective against certain infections caused by Gram-positive bacteria. It is currently administered only orally with specially coated tablets which may be taken with meals. A single dose of 0.2 Gm. produces an average blood concentration of 0.04 to 0.16 mcg. per cc. for six to eight hours. The average dose for adults ranges from 0.2 to 0.5 Gm. every six hours; for children, 6 to 8 mg. per Kg. of body weight every six hours are suggested.

Ilotycin Tablets (*Specially Coated*): 0.1-Gm. Eli Lilly & Company, Indianapolis.

ERYTHROMYCIN STEARATE.—Erythrocin Stearate (Abbott).—Erythromycin stearate is the stearic acid salt of erythromycin. It usually contains some uncombined stearic acid. It has the same action and uses as erythromycin base and the oral dosage is expressed in terms of the base. The adult dosage is the same as indicated under erythromycin. For children the recommended dose is equivalent to 4.5 to 6.5 mg. of erythromycin base per Kg. (2 to 3 mg. per lb.) of body weight, administered at four- to six-hour intervals.

Erythrocin Stearate Oral Suspension (*Pediatric*): 60-cc. bottles. A flavored suspension containing 20 mg. of erythromycin as the stearate in each cc. Preserved with 0.1% methylparaben and 0.02% propylparaben. Abbott Laboratories, North Chicago, Ill.

HYDROCORTISONE.—Cortef (Upjohn).—Hydrocortone (Sharp & Dohme).—17-Hydroxycorticosterone. Hydrocortisone may be the principal glycogenic steroid secreted by the adrenal cortex, and under conditions of stress may participate in physiological reactions to a greater degree than cortisone. Hydrocortisone is administered orally. Daily observation is essential to determine individual response and to establish maintenance dosage. Studies indicate that the clinically effective oral dosage ratio of hydrocortisone to cortisone averages 1:1.6. For rheumatoid arthritis, the initial dosage for adults is 40 to 80 mg. given in divided doses four times a day, until the desired effect is obtained (not over two weeks); the dosage is then reduced by steps of not more than 10 mg. to the minimum effective maintenance level. In other diseases a dose of 20 mg. of hydrocortisone is recommended whenever a 25-mg. dose of cortisone would be indicated. Other dosage also may be estimated on the basis of this ratio (4:5). The advantages of administering hydrocortisone should be weighed against its possible deleterious effects. It is usually contraindicated for the long-term treatment of any condition complicated by diminished cardiac reserve, congestive heart failure, hypertension, latent or overt psychotic tendencies, severe diabetes mellitus, advanced cachectic states, renal insufficiency, and senescence. It is absolutely contraindicated in the presence of active or questionably healed tuberculosis.

Hydrocortone Tablets: 5-, 10-, and 20-mg. U. S trademark 536,020. Sharp & Dohme, Division of Merck & Company, Inc., Philadelphia.

Cortef Tablets: 10-mg. U. S. trademark 583,191. The Upjohn Company, Kalamazoo, Mich.

TOLAZOLINE HYDROCHLORIDE.—Priscoline Hydrochloride (Ciba).—2-Benzyl-2-imidazoline hydrochloride.—Tolazoline hydrochloride is a potent adrenolytic, sympatholytic, and vasodilator drug. Unlike other adrenolytic drugs, tolazoline also produces a direct and histamine-like dilating effect on the wall of small blood vessels. It is chiefly effective for increasing blood flow in peripheral vascular disorders in which vasospasm is a prominent factor. Oral administration, either alone or in conjunction with parenteral therapy, is preferred when prolonged treatment is necessary. The most effective dosage is reached at or just below the point when the skin becomes flushed and the patient experiences a feeling of chilliness. The usual initial oral dose for adults is 25 mg. four to six times daily; this may be gradually increased to obtain the desired response. The usual parenteral (subcutaneous, intramuscular, or intravenous) dose ranges from 25 to 75 mg. injected four times daily, with the patient under observation. A cutaneous sensation of crawling, chilliness with resultant goose flesh, or a feeling of warmth indicate when effective dosage has been reached.

Priscoline Hydrochloride Elixir: 473-cc. bottles. A flavored elixir containing 6.25 mg. of tolazoline hydrochloride in each cc. *Priscoline Hydrochloride Solution:* 10-cc. vials. A solution containing 25 mg. of tolazoline hydrochloride in each cc. Preserved with 0.5% chlorobutanol. *Priscoline Hydrochloride Tablets:* 25-mg. U. S. patent 2,161,938. Ciba Pharmaceutical Products, Inc., Summit, N. J.

(Continued on next page)

N.N.R.

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ADDITIONAL ARTICLES ACCEPTED FOR ADMISSION TO N.N.R.

Oleovitamin A-U. S. P. — *Acon Vitamin A Drops:* 30-cc. bottles. A flavored solution containing 25,000 U. S. P. units of vitamin A palmitate in each cc. Preserved with 0.18% methylparaben and 0.02% propylparaben. U. S. trademark 538,867. Endo Products, Inc., Richmond Hill, New York.

Penicillin for Oral or Sublingual Administration—*Tablets Potassium Penicillin G (Buffered)*: 500,000 and 1,000,000 units. Buffered with calcium carbonate. Premo Pharmaceutical Laboratories, Inc., South Hackensack, N. J.

Phenacemide—*Enterab Tablets Phenurone:* 0.3-Gm. U. S. trademark 522,257. Abbott Laboratories, North Chicago, Ill.

Polyethylene Glycol—*Carbowax* 400: 226.8-Gm. bottles. *Carbowax* 1000: 226.8-Gm. jars. U. S. trademark 380,450. Carbide & Carbon Chemicals Company, Division of Union Carbide & Carbon Corporation, New York.

Progesterone-U.S.P.—*Solution Progesterone in Oil:* 10-cc. vials. A solution in cottonseed oil containing 25 mg. of progesterone in each cc. Preserved with 0.5% chlorobutanol. The Upjohn Company, Kalamazoo, Mich.

Pyridoxine Hydrochloride—*Tablets Beadox Hydrochloride:* 10-, 25- and 50-mg. Premo Pharmaceutical Laboratories, Inc., South Hackensack, N. J.

Pyrilamine Maleate—*Tablets Pyrilamine Maleate:* 25-mg. The Evron Company, Chicago.

Riboflavin-U. S. P.—*Tablets Riboflavin:* 5- and 10-mg. The Evron Company, Chicago.

Sulfadiazine-U. S. P.—*Tablets Sulfadiazine:* 0.5-Gm. The Evron Company, Chicago.

Testosterone-U. S. P.—*Suspension Testrone:* 10-cc. vials. A suspension in isotonic saline solution containing 25 or 100 mg. of testosterone in each cc. Preserved with 0.01% thimerosal. E. S. Miller Laboratories, Los Angeles.

Thiamine Hydrochloride-U. S. P.—*Tablets Thiamine Hydrochloride:* 5- and 10-mg. The Evron Company, Chicago.

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A Preliminary Note on Measuring the Relative Diffusion of Medicaments from Ointment Bases by Chromatographic Methods

by | **Enver Izgu***
C. O. Lee†

Much has been written in recent years about the newer types of ointment bases such as the washable, hydrophilic, water-holding, and/or emulsified bases. Not too much is known as to the relative diffusion of medicaments from ointment bases to the skin or other mediums. In an effort to get an idea about the diffusion of certain chemicals from an ointment, the technique of chromatography was used.

The following procedure was used to observe the diffusion of eserine salicylate from an ointment. A Whatman filter paper was lightly marked by drawing two pencil lines across it, each at 90 degrees to the other and bisecting in the center of the paper. Each line was marked in centimeters. The paper was then well wetted with a solution of ferric chloride and placed in a Petri dish. The ointment was put in a glass cylinder which measured about one centimeter in both width and depth. The cylinder was then inverted and placed in the center of the impregnated filter paper. The dish containing the paper, and the ointment superimposed on it, was set in a desiccator which contained water to keep the paper moist so that the process of diffusion or capillarity would operate, and observations were made at regular intervals.

Diffusion of the salicylate into the paper was indicated by the appearance of a purplish color of ferric salicylate, the result of a reaction between the eserine salicylate and the ferric chloride. The purple-colored zone increased gradually showing a regular and even diffusion of the medicament which was apparently governed by the concentration of moisture in both the paper and the base.

The bases used were hydrophilic petrolatum U. S. P. XIV, polyethylene glycol ointment U. S. P. XIV, and a hydrophilic ointment base designated as F-73. The release of the chemical medicament from these various bases differed greatly.

Other preliminary tests were made with iodine, using starch-paste paper, and sodium bicarbonate and sodium borate, using phenolphthalein in the filter paper. The results obtained in these preliminary tests indicate the possible use of the chromatographic method of determining the release of medicaments from ointment bases.

* Present address, Maltepe Onur Sok, 34, Ankara, Turkey.
† Professor of Pharmacy, Purdue University, School of Pharmacy, Lafayette, Ind.

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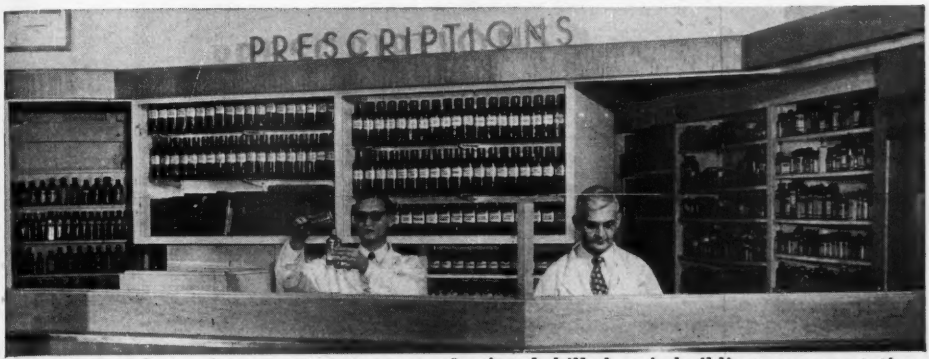

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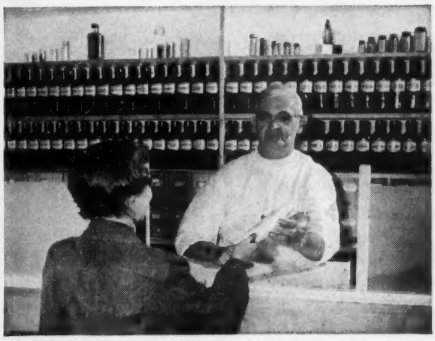

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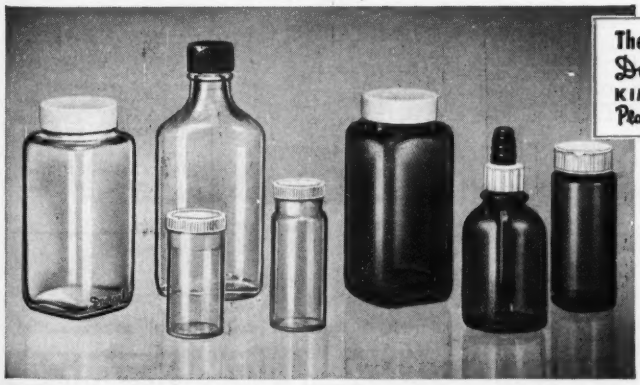

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Deceased Members

Callander, Raymond A., Duluth, Minn.
Doss, N. J., Jacksonville, Fla.
Joslyn, Allen W., Racine, Wis.
LaLonde, Elzear J., Alpena, Mich., May 13, 1954
Laquer, Fritz Oscar, Philadelphia, Pa., May 30, 1954
Schaefer, Frederick, Brooklyn, N. Y., June 15, 1954
Schumaker, Henry A., Beloit, Wis., April 25, 1954
Zufall, Chalmers J., West Lafayette, Ind., December 11, 1953

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Reference: 1. J. A. M. A. 153:1519, (Dec. 26) 1953

This advertisement is appearing in current medical journals as part of Sharp & Dohme's promotion to the profession.

NEW PRESCRIPTION PRODUCTS

All items on which information has been received in the past thirty days are reported here. Manufacturers are urged to send details of their new products as early as possible, so that pharmacists through these pages will have full information at the same time, or even before, products are detailed to the physician. For inclusion in this free editorial department, send descriptive literature to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, *2215 Constitution Avenue, N. W., Washington, D. C. Where possible, all descriptions should follow the style shown on these pages.*

Acetycol Tablets

Description: Each tablet contains colchicine, salicylated, 0.25 mg.; aspirin, 325 mg.; *p*-aminobenzoic acid, 162 mg.; ascorbic acid, 20 mg.; thiamine HCl, 5 mg.; and niacin, 15 mg.

Indications: In the treatment of rheumatism and arthritis.

Administration: One or two tablets three or four times daily.

Form Supplied: Bottles of 100 and 500.

Source: Warner-Chilcott Laboratories, New York, N. Y.

Artamide Tablets

Description: Each white, coated tablet contains: salicylamide, 0.25 Gm.; *p*-aminobenzoic acid, 0.25 Gm.; ascorbic acid, 20 mg.; and Organidin (organically combined iodine), 10 mg.

Indications: Analgesic for rheumatic conditions.

Administration: Two tablets three or four times daily.

Form Supplied: Bottles of 100 and 500.

Source: Wampole Laboratories, Philadelphia, Pa

Erythrocin Lactobionate

Description: Each vial contains 300 mg. or 1 Gm. of erythromycin as lactobionate, as a sterile, lyophilized powder.

Indications: Treatment of serious infections caused by staphylococci, streptococci, and pneumococci. Especially indicated in infections produced by strains of those organisms which are resistant to other antibiotics—or when the patient is allergic to penicillin and other antibiotics.

Administration: Children and adults—1 to 2 mg. per pound of body weight, administered intravenously or intramuscularly, repeated at intervals of 8 to 12 hours.

Form Supplied: In 30-cc. and 10-cc. vials containing the equivalent of 1 Gm. and 300 mg. of erythromycin, respectively.

Source: Abbott Laboratories, North Chicago, Ill.

Femandren Linguets

Description: Each green, scored Linguet contains: ethinyl estradiol, 0.02 mg.; and methyltestosterone, 5 mg.

Indications: For use in the menopause, osteoporosis, and geriatrics.

Administration: Under the tongue or between gum and cheek. Menopause—$^1/_2$ to 1 Linguet daily or every other day for 21 days of a 28-day cycle. When symptoms are controlled, establish maintenance dose. Osteoporosis—1 to 2 Linguets daily for one month.

Form Supplied: Bottles of 30 and 100.

Source: Ciba Pharmaceutical Products, Inc., Summit, N. J.

Metorbic Capsules

Description: Each capsule contains *dl*-methionine, 200 mg., and ascorbic acid, 30 mg.

Indications: Dietary supplement to assist in the rapid healing of wounds and traumatic lesions.

Administration: Six to 8 capsules daily with water or milk. In surgery, start 7 to 10 days before operation.

Form Supplied: Bottles of 100 and 1,000.

Source: Paul B. Elder Co., Bryan, Ohio.

Myomephetane Tablets

Description: Each tablet contains: amobarbital, 8 mg.; mephenesin, 400 mg.; physostigmine salicylate, 0.25 mg.; homatropine methylbromide, 0.60 mg.; and salicylamide, 130 mg.

Indications: For the relief of painful spasms accompanying rheumatic and arthritic conditions, anxiety tension states, and tremors of alcoholism.

Administration: One or two tablets three times daily.

Form Supplied: Bottles of 100 and 1,000.

Source: Testagar & Co., Inc., Detroit, Mich.

NIDAR Tablets

Description: Each light-green, scored tablet contains: secobarbital sodium, 25 mg. (3/8 gr.); pentobarbital sodium, 25 mg. (3/8 gr.); butabarbital sodium, 7.5 mg. (1/8 gr.); and phenobarbital, 7.5 mg. (1/8 gr.).

Indications: For sedative control of tension.

Administration: One tablet one-half hour before the periods of morning and afternoon tension, and 1 or 2 tablets one-half hour before retiring.

Form Supplied: Bottles of 100.

Source: The Armour Laboratories, Chicago, Ill.

Reserpoid Tablets

Description: Tablets containing 0.1 or 0.25 mg. of reserpine, *Rauwolfia serpentina* alkaloid.

Indications: Treatment of mild to moderate essential hypertension and in menopausal hypertension.

Administration: Starting oral dosage 0.75–1.0 mg. daily as directed by physician.

Form Supplied: Bottles of 100 and 500.

Source: The Upjohn Company, Kalamazoo, Mich.

Sodium Sulamyd Ophthalmic Solution 10%

Description: An ophthalmic solution containing sodium sulfacetamide 10%, with methylcellulose 0.5%.

Indications: Antibacterial and anti-inflammatory agent for mild to moderately severe eye infections, and in the management of corneal injuries, acute and chronic conjunctivitis, trachoma, epidemic keratoconjunctivitis, blepharitis ulcerosa, ocular disturbances in smallpox, and injury to the eyes by chemicals such as war gases.

Administration: One or two drops instilled into the conjunctival sac every two or three hours during the day and less often at night until a favorable response is obtained.

Form Supplied: 15-cc. dropper bottle.

Source: Schering Corporation, Bloomfield, N. J.

Other New Products

(Chemicals, clinical trial drugs, diagnostic aids, and equipment for the retail and hospital pharmacy)

Antrenyl Bromide Phenobarbital Tablets and Antrenyl Bromide Pediatric Drops

Ciba Pharmaceutical Products, Inc., has announced the introduction of Antrenyl Bromide Phenobarbital tablets and Antrenyl Bromide Pediatric Drops. Each scored tablet contains: Antrenyl Bromide (oxyphenonium bromide), 5 mg.; and phenobarbital, 15 mg. Packaged in bottles of 100 tablets. Antrenyl Bromide Pediatric Drops is useful in infants and children suffering from various gastrointestinal disturbances. Each drop contains 1 mg. of oxyphenonium bromide. Packaged in 5-ml. bottles with dropper.

Asymatrine Injection

Asymatrine has been marketed by *George A. Breon & Company* as an analgesic and antispasmodic agent for use in control of coronary spasm. Asymatrine injection contains morphine sulfate, 16 mg.; and papaverine hydrochloride, 32 mg., in each cc. It is available in 1-cc. ampuls, 25 to a box.

Broxolin Vaginal Tablets

Tablets containing bismuth glycolylarsanilate have been marketed by *George A. Breon & Company* for the treatment of bacterial or parasitic infection of the vagina. One Broxolin vaginal tablet is administered morning and night, usually for 10 days. The product is available in bottles of 20 and 100 tablets.

Centrine Tablets with Phenobarbital

Centrine Tablets with Phenobarbital are now marketed by *Bristol Laboratories, Inc.*, in addition to their Centrine Tablets (0.5 mg. aminopentamide hydrogen sulfate) and Centrine Solution (0.05 mg. aminopentamide hydrogen sulfate per drop). Each new scored tablet contains 0.5 mg. aminopentamide hydrogen sulfate and 15.0 mg. (1/4 gr.) phenobarbital. In the treatment of gastric ulcer, duodenal ulcer, pylorospasm and hypertrophic gastritis where central nervous system sedation is desirable, the average dose is 1 tablet three or four times daily. Supplied in bottles of 100 tablets.

Clortran Capsules

Clortran (stabilized chlorobutanol) capsules have been marketed by *Wampole Laboratories*. Chlorobutanol is used in the management of motion sickness because of its mild, carminative and anesthetic effect on the gastric mucosa, and it is indicated in nausea and vomiting after anesthesia, in pregnancy, emotional stress, or illness. Clortran is supplied in 0.25-Gm. (3 3/4 gr.) and 0.5-Gm. (7 1/2 gr.) golden-orange capsules.

Delatestryl Solution

Delatestryl solution contains 200 mg. per cc. of testosterone enanthate in sesame oil. It is supplied by *E. R. Squibb & Sons.*, and it is recommended for androgen therapy in both male and female It is available in 5-cc. multiple-dose vials.

Dexalme L. A. 10—New Dosage Size

Dexalme L. A. 10, a capsule containing 10 mg. of dextro-amphetamine sulfate in coated pellet form, is supplied in bottles of 100 and 1,000 by *Meyer Chemical Co., Inc.*

(Continued on next page)

New Rx Products

••••••••••••••*from preceding page*

Ilidar Phosphate Tablets

Ilidar, a dibenzazepine derivative recently introduced by *Hoffmann-La Roche, Inc.*, is an adrenolytic blocking agent for use in the treatment of vasospasm and it is claimed to be particularly useful in the symptomatic relief of circulatory conditions characterized by aching, coldness, tingling, and numbness of extremities. It is available as the phosphate in 25-mg. coated, oral tablets in bottles of 100 and 500.

Kerodex Cream

Kerodex is a barrier cream providing a protective coating against various contact dermatoses. It is supplied in two types: Kerodex No. 71 (water repellent), and Kerodex No. 51 (water miscible). Both types are supplied in 4-oz. tubes and 1-lb containers by *Ayerst, McKenna & Harrison, Ltd.*

Maxilets Tablets

Maxilets, marketed by *Abbott Laboratories*, are a balanced nutritional supplement for prophylaxis or treatment of vitamin-mineral deficiencies. Maxilets contain 10 essential vitamins (including natural B-complex factors), nine important minerals and trace elements, and three hematinic factors. Proportions of Minimum Daily Requirements (MDR) provided per tablet are: vitamin A, $2^1/_2$ MDR; vitamin D, $2^1/_2$ MDR; vitamin B_1, 5 MDR; vitamin B_2, $2^1/_2$ MDR; vitamin C, 3 MDR; iron, 1 MDR; iodine, $1^1/_2$ MDR. The dose is 1 tablet daily. Available in bottles of 100.

Mersalyn Solution

Mersalyn Solution is the *C. F. Kirk Company* name for mersalyl and theophylline injection U. S. P. with benzyl alcohol 2%. Each 2 cc. (test dose) contains mersalyl, 0.2 Gm.; and theophylline, 0.1 Gm. It is available in 2-cc. ampuls in boxes of 12, 25, and 100.

Mesopin Tablets—New Dosage Sizes

Mesopin-5 mg. tablets are now marketed by *Endo Products Inc.*, as peach-colored tablets each containing 5 mg. of homatropine methylbromide. Mesopin-PB-5 mg. tablets contain in each green tablet: homatropine methylbromide, 5 mg.; and phenobarbital, 15 mg. Both products are available in bottles of 100, 500, and 1,000. Mesopin continues to be available as the 2.5-mg. white tablet; and as the 2.5-mg. Mesopin-PB green tablet with 15 mg. of phenobarbital.

Monodral Bromide

Monodral, a new agent for ulcer control, has been introduced by *Winthrop-Stearns Inc.* Available in 5-mg. Caplets in bottles of 100, Monodral is reported to be particularly effective in inhibiting gastric motility and secretion. Dosage recommended for the average patient is 1 or 2 Caplets 3 or 4 times a day.

Mysoline Tablets

Mysoline, brand of primidone, is an anticonvulsant found particularly valuable in the control of grand mal and psychomotor seizures. In patients receiving no other anticonvulsant, dosage is 0.25 Gm. daily at bedtime and gradually increased weekly to achieve maximum effect. It is supplied in 0.25-Gm. tablets in bottles of 100 and 1,000 by *Ayerst, McKenna & Harrison, Ltd.*

Nitroglyn Tablets—New Dosage Size

Key Corporation has announced the availability of Nitroglyn tablets containing $^1/_{10}$ gr. (6 mg.) of nitroglycerin in addition to the $^1/_{25}$ gr. (2.5 mg.) size previously introduced.

Polycycline Capsules

Polycycline is tetracycline manufactured by *Bristol Laboratories Inc.* It is available in 250-mg. capsules in bottles of 16 and 100, and in 100-mg. capsules in bottles of 25 and 100.

Sulfa-Readicillin

A citrus-flavored oral suspension containing penicillin G potassium and mixed sulfonamides for the treatment of staphylococcic, streptococcic, and pneumococcic infections, Vincent's stomatitis, and gonorrhea, has been marketed recently by *The Upjohn Company.* It is available in bottles of 60 cc.

Surgimin and Surgimin-T

Walker Laboratories, Inc., has recently marketed two vitamin tablets, Surgimin for maintenance, and Surgimin-T for therapeutic use. The dose for each is one tablet three times a day. They are available in bottles of 100 tablets.

Terramycin Intramuscular

A new dosage form of Terramycin (oxytetracycline) which can be administered intramuscularly has been marketed recently by *Pfizer Laboratories*, (Chas. Pfizer and Company). The Terramycin, 100 mg. (as the crystalline hydrochloride), together with procaine, 40 mg., and magnesium chloride hexahydrate, is contained in a single-dose vial. Sterile water, 2.1 cc., is added to form a solution. Terramycin Intramuscular is also available in steraject cartridges.

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STRAIGHT FROM HEADQUARTERS

ROBERT P. FISCHELIS, EDITOR

Misconceptions About Pharmaceutical Education

IN A WELL-written letter on page 388 of this issue of the JOURNAL the President of the North Carolina Pharmaceutical Association presents his reasons for opposing "the five-year course" for the Bachelor of Science degree in Pharmacy. Mr. West, the author of the letter, is a respected pharmacist in Roseboro, N. C., and we can agree with much of what he has said to support his position in arguing against what he refers to as "the mandatory five-year requirement for a B.S. in Pharmacy."

Where we differ with Mr. West is in his apparent oversight in recognizing that the conditions which have prevailed to establish the present position of pharmacy and the pharmacists in the communities throughout the United States will not be the same for the next generation.

Mr. West and his other respected contemporaries—the conscientious, able men who represent American pharmacy at the grass roots—received their education and pharmaceutical training at a time when we had a different materia medica and before the tremendous strides in the development of the physical and biological sciences which resulted in the production of many of our modern therapeutic agents and the healing devices and preparations still to come. Furthermore, they received their education and training under economic and social conditions which have changed considerably during their lifetime and which are continuing to change.

It is no disrespect to these men to point out that as they have grown up in the profession of pharmacy, they have continued their own education without the formality of attending graduate courses. They have picked up the additional knowledge required to give high-quality professional services to the communities which they serve by wide reading and daily study of people and social and economic conditions which have gradually developed and of which they have been a part.

For the oncoming generation to acquire what these men now possess, we must expand our training program so that the young men and women now coming into the profession will not be unduly handicapped in continuing from where our present fine professional pharmacists have arrived or are leaving off.

Tremendous changes in world affairs, and in the position of our own country with respect to these affairs, are influencing the customs and the daily life of our communities. A certain type of leadership in community affairs, especially those which bear on the health of our people, demands a broader background of training in the social sciences than can be acquired by "on the job" training in a short time.

If the pharmacist is to maintain his position as a leader in community affairs, he must know at least as much about these affairs as the average citizen.

It will not be long before the terminal compulsory education of our youth will go beyond the four-year high school and will include the Junior College. Just as the youth of yesterday who was a high-school graduate had greater opportunities than the one who went directly into industry from the grammar school, so today the young man or woman who has had a Junior College training can look forward to greater immediate opportunities than the high-school graduate.

The community pharmacist has always been looked upon as one who has had a more complete formal education than the businessmen of the community. Today the local merchant, the farmer and a large proportion of the consumer population are college trained.

Surely we do not want to handicap the

young men and women who are expected to and who will furnish leadership in matters of health and other community affairs by limiting their education to exclusively professional and technical subjects.

American medicine and dentistry have long since learned that in order to maintain their positions among the professions and vocations, the men and women who practice these professions must have the proper cultural background expected of those who deal with the lives and health of people and with the spiritual and moral growth of the communities in which they carry on their work.

We are quite certain that those who are in the practice of pharmacy today recognize fully the importance of keeping the unfit out of the profession of pharmacy.

Fitness is not confined to technical and professional ability. Fitness, as far as pharmacy is concerned, must more and more include moral, ethical and social responsibility. We have too many people in American pharmacy now whose sole interest is in the quick dollar they think they can make by the application of their professional and technical knowledge to the exclusion of any social or moral responsibilities for their acts.

The educational process necessary today to fit youth for professional responsibility cannot be hurried. It takes time to condition young minds to become properly receptive to the absorption of the fundamental physical and biological concepts which underlie the production, dispensing and use of modern drugs.

We know of no one who has urged more than three years of professional and technical training at the college level to fit young men and women to do the actual compounding and dispensing of drugs and to render the pharmaceutical services which are demanded in addition to the dispensing of prescriptions.

But these three years of intensive professional training require a background of at least two years of education in the fundamental sciences which underlie an understanding of the professional work in pharmacy, pharmaceutical chemistry, pharmacology, and pharmacy administration.

As for the economic side of the picture, we have yet to learn of any able young man or woman who has sincerely wanted to study pharmacy, and who was qualified mentally and morally to become a pharmacist, who was unable to obtain necessary aid in the way of scholarships or other finances to achieve his or her goal.

It has been definitely shown that the student population of our colleges and universities will grow tremendously in the next few years, so that there will be keen competition for places in the various universities and colleges.

By 1960 there will be an estimated 16 per cent increase in our population reaching college age. By 1965 the estimated increase is 46 per cent, and 70 per cent by 1970.

Pharmacy should gain its fair share of this increase in available numbers of students, unless the pharmacists of America are unable to show the oncoming generation that entry into this profession is a satisfying way of life and that the practice of the profession is not a sham.

A longer period of education, both foundational and professional, is not required only for those who enter research, manufacturing or teaching, as Mr. West maintains. It is a necessity for the future community pharmacist who must maintain himself in business while serving the public with intelligence, devotion, and a full appreciation of the fact that their most priceless possession is their health.

Boston Convention Program

THE tentative program for the 101st meeting of the AMERICAL PHARMACEUTICAL ASSOCIATION and affiliated and related organizations appeared in the June issue of THIS JOURNAL beginning on page 344.

The program of the Section on Pharmaceutical Economics appears on page 442 of this issue. In addition there are messages of welcome from President F. Royce Franzoni and from the Women's Auxiliary President, Mrs. Doris Kelley, on pages 416 and 417.

On the cover of this issue are the photographs of the presiding officers of the organizations which will hold meetings in Boston during the week of August 22.

Requests for room reservations have exceeded all previous records, and the professional, scientific, and entertainment programs are shaping up splendidly.

We expect the Boston meeting to break attendance records and to be one of our most outstanding Conventions in recent years.

by FRANK C. COMBES, M. D.*

High and Low Temperature COAL TARS *In The Treatment of* SKIN DISEASES

ALMOST a half century ago Brocq (1) recommended the application of pure crude coal tar in the treatment of lichen simplex, neurodermatitis, and similar chronic inflammatory dermatoses. His one admonition was that one should use "only the coal tar produced in making of illuminating gas." About ten years later C. J. White (2) of Boston tried to duplicate Brocq's results, using a domestic tar, but encountered difficulty in that the tar in many instances caused intense irritation. It was necessary to incorporate it in a paste of starch and zinc oxide, in strengths of about 10 per cent. He also noted differences in tars from different sources and for constancy of effect recommended that of the Eastern Drug Company. Even then White stated, "Personally, I feel we do *not* get quite such brilliant results from the tar obtained by modern methods as commercialized by the Eastern Drug Company."

Could the difference in White's results and those of Brocq have been due to the higher naphthalene content of the American product? It is possible; the naphthalenes, especially the methyl naphthalenes have a highly penetrative action and exert a hardening effect when rubbed into the skin.

Over twenty years ago I became interested in the therapeutic virtues of coal tar (3, 4). Very early I was impressed by the variable responses of the skin to tars of different origins. This prompted a study of the basic chemical nature of tar in an attempt to explain these differences in effect. Results were rather disappointing since tars of supposedly identical source would vary widely in both physical and chemical nature as well as effect. It must be appreciated that tars differ not only in their ultimate chemical composition, but in regard to percentage and quality of the distillates, since many constituents are lost by volatilization and others are polymerized at the high temperature to which the parent substance is exposed. Furthermore, it has been proved in practice that the nature of the raw material (coal, shale, bituminous lignite, petroleum, etc.) and the temperature of carbonization affect the chemical composition and hence the quality of the tar.

Composition of Tars

Coal carbonization consists of heating coal in the absence of air to various temperatures (450–1200° C.). Low-temperature tars distill at 450–700°; high-temperature tar at 900–1200°. The temperature selected depends largely on the kind of products desired. The principal products are coke and gas. Others are contained or formulated in the distillate and vary in composition and property depending on the nature of the "coal," the temperature, and conditions of carbonization.

In brief these are as follows: (*a*) *Light and Middle Oils.—Tar Acids:* phenol, cresols, xylenols, cresylic acid, etc.; *Tar Bases:* xylene, toluene, coumarine, etc.

(*b*) *Heavy and Anthracene Oils.—Naphthalenes:*

TABLE I.—RELATION OF PREPARATION TO APPROXIMATE PERCENTAGE COMPOSITION OF TARS

Horizontal Retort—High-Temperature		
	Light Charges	Heavy Charges
Tar acids	14	17
Naphthalenes	7	4
Free carbon	23	15
Pitch	67	60
	Rapid Narrow Oven	Slow Wide Oven
Tar acids	14	25
Naphthalenes	3	5
Pitch	65	71
Vertical Retort—High-Temperature		
	Intermittent	Continuous
Tar acids	30	46
Naphthalenes	1	0
Free carbon	3	3
Pitch	62	51
Vertical Retort—Low-Temperature		
Tar acids	45	
Naphthalenes	0	
Free carbon	1	
Pitch	35	

* Physician, 104 East 40th Street, New York 16, N. Y.

alpha and *beta* naphthalenes, 1-methylnaphthalene, 2-methylnaphthalene, dimethylnaphthalene, acenaphthene; *Anthracene Oils:* phenanthrene, anthracene, pyridine, picolines, quinolines, etc.

(*c*) *Carbon.*

(*d*) *Pitch.*—Pitch greases, oils, resins, etc.

The compositional variations in a coke-oven tar are illustrated in Table I.

The naphthalenes belong to the middle and heavy oil fractions. In low-temperature coke-oven tar distillation the middle oils comprise over 20 per cent of the tar, whereas in high-temperature gas-house tars (the type usually available in the U. S.) they are present in amounts not exceeding 8 or 10 per cent. The tar used by Brocq was a low-temperature tar, high in tar acids and low in naphthalenes; that used by White was high in naphthalenes and low in tar acids.

Jaffrey (5) determined what he considered to be the therapeutically active principal fraction of crude coal tar. Briefly his conclusions were that in chronic dermatoses naphthalene was inactive and objectionable, responsible for irritation; and that those tars containing the largest percentage of tar acids were the most active. I concur with him in part; I differ in respect to the naphthalenes. In acute vesicular dermatoses they seem beneficial. I do not think they are irritating. They do not irritate the acutely inflamed skin but act as reducing or keratoplastic agents. 1,8-Dihydroxyanthranol (dioxyanthranol, anthralin) will cause erythema on normal skin but will cause blanching on the inflamed acanthotic epidermis. Likewise, coal tar with a moderate naphthalene content may inflame a patch of psoriasis or lichen simplex but be beneficial to an area of acute or subacute vesiculation.

The low-temperature "brown tars," so common in England, and the Disco type, low-temperature coal tar made by the Pittsburgh Coal Carbonization Company, are quite irritating to vesicular dermatoses but beneficial to those of the chronic, squamous variety.

Dr. Max Jessner, formerly of Breslau but now of the Skin and Cancer Unit of the New York University Post-Graduate Medical School states that a "Diener" at Jadassohn's and Neisser's Clinic always went to the gas house to be sure to obtain a tar from the "bottom" of the tank. "In der Tiefe liegt die Wahrheit." The "Diener" claimed that was the only type of tar that was less irritating in chronic dermatoses. Certainly it was the tar with a minimum of tar acids since the acids are of low specific gravity (0.95–1.06 at 25° C.) and would rise to the surface.

The low-temperature tars are also more varied in composition, low in carbon and pitch, free of naphthalene, and high in tar acids. Often they are called "primary tars"; and in Germany "Urteer." Their odor is characteristic in that there is no trace of naphthalene but rather an odor of hydrogen sulfide, mercaptan, and phenols.

Author's Summary

Coal tar (U. S. P.) is of such varied composition that it should not be prescribed as such.

A high naphthalene content may prove exceptionally irritating.

Tar with a low tar-acid content and moderate naphthalene content is most effective in acute vesicular dermatoses.

Tar with a high tar-acid content and low naphthalene content is most effective in psoriasis and chronic dermatoses in which tar is indicated.

Practical Therapeutic Significance

There are two important objections to the use of coal tar in dermatology. One is its black color; the other its varied composition. After all, it really does not seem logical to use the identical product on an acute vesicular dermatitis and on an old, thickened, excoriated, lichenified patch of skin, and expect favorable response in both instances.

As regards the blackness of coal tar, this can be corrected by removing the carbon and pitch, which are both inert and objectionable otherwise. Most tar available in this country is obtained as a product of high-temperature vertical or horizontal retort carbonization in coke ovens.

Some gas companies are interested in production of a tar rich in anthracene oils. They use bituminous coal and their carbonization process is conducted in horizontal retorts at low temperatures. Most companies which are primarily interested in manufacture of illuminating gas of high B. t. u. use relatively small amounts of coal, but rather crude petroleum oil and superheated steam at high temperature. This produces a tar poor in anthracene oils but relatively high in naphthalenes and cresols. In both acute and

(Continued on page 427)

COMPARISON OF THE Suspending Activity OF SUSPENDING AGENTS

by CHARLES T. LESSHAFFT, JR*
H. GEORGE DEKAY†

A SURVEY of the literature reveals that a number of the newer suspending agents used in recent studies are cellulose derivatives. Only a few of these studies have considered the viscosity of the dispersions used in comparing the suspending activity of these agents. However, there are several reports that indicate that suspending activity may not be entirely dependent upon viscosity (1–3). Since these reports seem to indicate that the suspending activity of the agents cannot be predicted on the basis of the viscosity of their mucilages, it would appear that a study of this property of different dispersing agents should be helpful in the selection of an agent for use in formulation.

The purpose of this study is to compare the suspending activity of some of the newer cellulose derivatives. Methylcellulose is included because it was the first member of this group. Other agents are included for the purpose of comparison with the cellulose derivatives. Veegum HV[1] was selected as representing the clays, tragacanth, and Gelloid[2] as representing the natural carbohydrates.

To make an accurate comparison, concentrations of the mucilages should be selected which have the same viscosity. If the same percentage concentration were used, then the viscosities would vary to such an extent that it would be difficult to tell whether the rate of settling was due to the higher viscosity of the mucilage or to the superior suspending activity of the agent.

The method commonly employed for comparing the rate of settling in pharmaceutical suspensions consists of measuring the volume of the sediment or the supernatant liquid at various intervals of time, usually days or weeks. This method does not consider the sedimentation which occurs during the first minute of settling which is important in obtaining an accurate dose of the suspended drug. A suspending agent should keep the insoluble drug uniformly distributed long enough so that doses containing an accurate amount of the drug can be with-

Presented before the Section on Practical Pharmacy, A.PH.A. Convention, Salt Lake City, August, 1953.

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† Professor of Pharmacy, Purdue University, School of Pharmacy, Lafayette, Ind.

[1] A complex colloidal magnesium aluminum silicate manufactured by the R. T. Vanderbilt Co.

[2] A purified extract of chondrus manufactured and supplied through the courtesy of Jacques Wolf and Co.

drawn. Therefore, the agents should be evaluated on their ability to perform this function. This can be accomplished by determining the percentage of drug in each dose and in the suspension remaining in the bottle after all of the doses have been removed. A uniform percentage among the doses and bottle would indicate a uniform distribution of the drug. Variation among the percentages would indicate a lack of uniformity in the distribution and an inaccuracy of dosage. The difference between the highest and lowest percentage could be used as a means for comparing the variation among the different suspensions.

Authors' Summary

The suspending activity of various suspending agents was evaluated on their ability to produce uniform suspensions with bismuth subcarbonate.

Tragacanth, methylcellulose-15 cps., and Veegum HV were found to be the most efficient of the suspending agents tested for suspending bismuth subcarbonate.

The other suspending agents listed in the order of their ability to suspend bismuth subcarbonate are: Gelloid-50, sodium cellulose sulfate—low viscosity, sodium carboxymethyl hydroxyethyl cellulose, sodium carboxymethylcellulose—high viscosity, sodium carboxymethylcellulose—medium viscosity, and sodium cellulose sulfate—medium viscosity.

Experimental

Suspending Agents.—The concentration, viscosity, and *p*H of the various mucilages are listed in Table I.

To obtain the same viscosity, different concentrations had to be selected for each mucilage. It can be seen in Table I that all of the mucilages had a viscosity of 55 cps. ± 2 at the time of preparation of the suspensions. Because of the thixotropic nature of the Veegum HV mucilage, it was shaken immediately for three minutes before the viscosity was determined. The mucilage was left in the viscosimeter undisturbed for five minutes at which time another determination was made to ascertain the variance in viscosity caused by the thixotropic nature of this mucilage.

TABLE I.—CONCENTRATION, *p*H, AND VISCOSITY OF THE MUCILAGES

	Per Cent W/W	*p*H[a]	Viscosity,[b] cps.
Sodium carboxymethylcellulose—high viscosity, (CMC-H)[c]	0.47	7.1	53.8
Sodium carboxymethylcellulose—medium viscosity, (CMC-M)[c]	1.4	7.0	55.3
Sodium carboxymethyl hydroxyethyl cellulose, standard type, 95 cps. viscosity grade, (CMHEC)[c]	2.15	7.0	55.5
Sodium cellulose sulfate—medium viscosity, (SCS-M)[d]	1.5	6.9	55.8
Sodium cellulose sulfate—low viscosity, (SCS-L)[d]	3.0	6.9	56.8
Methylcellulose - 15 cps.[e]	3.8	6.7	53.0
Gelloid-50[f]	0.9	6.7	55.5
Tragacanth U. S. P. (powder)[f]	0.7	6.1	53.5
Veegum HV	3.5	9.4	54.2[g]

[a] *p*H determinations were made at 25° C. with a Beckman *p*H meter (Model N).
[b] Viscosity determinations were made at 25° C. with a Stormer viscosimeter.
[c] Manufactured and supplied through the courtesy of the Hercules Powder Co.
[d] Manufactured and supplied through the courtesy of the Tennessee Eastman Corp.
[e] Manufactured by the Dow Chemical Co.
[f] Preserved with methylparaben 0.15% and propylparaben 0.025%.
[g] Five minutes later without any previous agitation the viscosity was 87.5 centipoises.

Insoluble Drug.—Bismuth subcarbonate U. S. P. XIV was selected as the insoluble drug because it gave good results with all of the suspending agents in a previous compatibility study made by the authors (4). The bismuth subcarbonate was dried at 105° C. to constant weight prior to the preparation of the suspensions. This was done to insure an accurate amount of the drug in the suspensions and to facilitate the calculation of the drug in the doses.

Container.—The same size and type of bottle was used with all of the suspensions to eliminate any possible error which could be attributed to the bottle.

Procedure.—Two suspensions containing 6 per cent of dried bismuth subcarbonate were prepared, using each of the mucilages as vehicles.

The drug was weighed on an analytical balance, transferred to a 4-ounce glass mortar, and levigated with approximately 3 cc. of the mucilage. It was quantitatively transferred to a tared 2-

ounce prescription bottle, using 3-cc. portions of the mucilage to rinse the mortar. Enough mucilage was then added to the bottle to make 50 Gm. of suspension.

The suspensions were shaken and subjected to a 60-second settling period immediately before the withdrawal of each dose. They were uniformly shaken for approximately fifteen seconds to insure complete dispersion of the drug at the beginning of each settling period. An estimated 8-cc. sample was poured into a tared crucible and immediately weighed on an analytical balance. Six samples were collected from each bottle in this manner. The bottle was emptied in collecting the sixth sample except for a small amount adhering to the side. The bottle was then weighed in order to determine this amount of suspension.

The samples were evaporated on a water bath and then, together with the bottle, were dried in an oven at 105° C. to constant weight. Several samples of each mucilage were also evaporated and dried along with the samples of the suspension in which the mucilage was used as the vehicle. This was done in order to determine the proportion of dried suspending agent and water in the mucilage.

The weight of the residue, containing the dried bismuth subcarbonate and the dried suspending agent, was subtracted from the weight of the sample in order to determine the weight of water present in the sample. Since the weight of the dried agent was in proportion to the weight of water, the weight of the dried suspending agent in the residue could be calculated. The difference between the weight of the dried agent and the residue was the weight of bismuth subcarbonate in the sample. The percentage of dried bismuth subcarbonate in each dose and in the suspension remaining in the bottle was then calculated. The amounts of dried bismuth subcarbonate recovered in the doses and bottle for each suspension were totaled and the per cent of recovery determined. These percentages are recorded in Table II.

It can be seen in Table II that the per cent of recovery was between 99.03 per cent and 100.74 per cent indicating an error of less than ±1 per

TABLE II.—THE PERCENTAGE OF BISMUTH SUBCARBONATE IN THE DOSES AND SUSPENSION REMAINING IN THE BOTTLE AND THE PERCENTAGE OF RECOVERY OF BISMUTH SUBCARBONATE

	Tragacanth Suspension		MC-15 cps. Suspension		Veegum HV Suspension	
Dose No.	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2
1	5.973	5.982	5.982	6.073	5.938	5.990
2	5.965	5.976	6.002	6.027	5.948	6.000
3	6.002	5.996	6.001	6.032	5.948	6.009
4	6.014	5.997	6.010	6.034	5.949	6.015
5	6.035	6.009	6.002	6.035	5.970	6.013
6	6.028	6.003	5.983	6.024	5.961	6.011
Bottle	5.566	5.828	5.917	6.598	6.374	5.754
per cent of Recovery	99.53	99.66	99.86	100.74	99.57	99.52

	Gelloid Suspension		SCS-L Suspension		CMHEC Suspension	
Dose No.	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2
1	5.846	5.983	5.957	5.939	5.955	5.944
2	5.891	6.002	5.978	5.936	5.955	5.937
3	5.924	6.002	5.978	5.941	5.965	5.947
4	5.912	5.983	6.005	5.946	5.985	5.968
5	5.925	6.020	6.015	5.983	5.993	5.977
6	5.858	5.966	6.021	5.974	6.070	6.044
Bottle	8.243	5.704	7.323	8.182	7.880	7.718
per cent of Recovery	99.63	99.51	100.51	100.13	100.59	100.19

	CMC-H Suspension		CMC-M Suspension		SCS-M Suspension	
Dose No.	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2
1	5.794	5.837	5.865	5.900	5.768	5.831
2	5.864	5.872	5.840	5.889	5.811	5.816
3	5.895	5.888	5.866	5.922	5.845	5.851
4	5.924	5.948	5.885	5.953	5.885	5.898
5	5.971	5.957	5.943	5.982	5.914	5.917
6	5.959	5.963	5.933	6.020	5.886	5.914
Bottle	8.383	7.397	9.435	7.985	10.26	11.17
per cent of Recovery	99.64	99.03	100.01	99.56	99.86	100.31

cent. In the case of the methylcellulose suspension No. 2 the per cent of error was +0.74 per cent and this explains why all of the doses in this suspension were above the theoretical 6 per cent. All of the doses in Table II are within a range of ±5 per cent of the theoretical amount.

As previously stated, a uniform percentage among the doses and bottle would indicate a uniform distribution of the drug in the suspension at the time the doses were withdrawn. Variation in the percentages would indicate an uneven distribution caused by settling and would result in an inaccurate dose. The difference between the highest and lowest percentage was used as a measure of the lack of uniformity in the distribution: the greater the difference, the greater the lack of uniformity. These differences together with the average for the two suspensions in which the same suspending agent was used are given in Table III.

The suspensions of tragacanth, methylcellulose, and Veegum HV, on an average basis, produced the most uniform distribution of bismuth subcarbonate. Therefore, of the agents tested, these can be considered the most efficient in suspending this drug. The difference among these three agents is very slight; however, there is a noticeable difference between them and the remainder of the group.

The two suspensions containing Gelloid were the only ones which showed a large deviation from their average value. Since the recovery percentage of bismuth subcarbonate was 99.51 per cent and 99.63 per cent for these suspensions it does not seem likely that the variation can be attributed to the assay. Some variation was expected which is the reason for using two suspensions for each of the agents. The experiment tried to simulate the conditions in which doses are obtained by the patient for the purpose of evaluating the agents under the conditions in which they are used. Because of this a human error in pouring the doses was introduced. Although the withdrawal of the doses was maintained as uniformly as possible, it is the most plausible explanation for this deviation.

TABLE III.—DIFFERENCE BETWEEN THE HIGHEST AND LOWEST PERCENTAGE OF BISMUTH SUBCARBONATE FOR EACH SUSPENSION

	Suspension		
	No. 1	No. 2	Average
Tragacanth	0.469	0.181	0.325
Methylcellulose-15, cps.	0.093	0.574	0.333
Veegum HV	0.436	0.261	0.348
Gelloid	2.397	0.316	1.356
SCS-L	1.366	2.246	1.806
CMHEC	1.925	1.781	1.853
CMC-H	2.588	1.560	2.074
CMC-M	3.595	2.096	2.845
SCS-M	4.492	5.354	4.923

Although the agents were evaluated on their ability to suspend bismuth subcarbonate, it is very likely that the same order of suspending activity would occur if evaluated with another drug of equal compatibility.

REFERENCES

(1) De Navarre, M. C., and Koehler, M., *Proc. Sci. Sect. Toilet Goods Assoc.*, No. 8, 22(1947).
(2) Editor, *Analyst*, **74**, 2(1949).
(3) Gerding, P. W., and Sperandio, G. J., *Drug Standards*, **21**, 215(1953).
(4) Lesshafft, C. T., Jr., M.S. Thesis, Purdue University, 1953.

Note on the Solubility of Alum in Alcohol-Water

A prescription for "4% solution of alum and alcohol" raised the question of the solubility of alum in alcohol and water mixtures as well as the problem of interpreting the prescription.

Alum is not appreciably soluble in alcohol. Therefore, the prescription must be interpreted to mean "a 4% solution of alum and alcohol *in water*." It might be further interpreted to mean a solution containing alum and alcohol, of each, 4%. This could be prepared by dissolving 4 Gm. of alum in enough water to make 90 cc. and adding a mixture of 4 cc. of alcohol and 6 cc. of water.

The following question was then raised: How high can the alcohol concentration be raised and still retain 4% of alum in solution? It was found that a solution containing 4% w/v of potassium alum (crystalline) and 14% v/v of alcohol can be prepared as follows: dissolve 4 Gm. of alum in 50 cc. of water, filter, if necesary, to remove the insoluble aluminum compounds, wash the first container with several portions of water, passing the washings through the filter; then add water through the filter to make 70 cc. of alum solution. Mix 14 cc. of alcohol with 16 cc. of water and add the mixture in portions to the alum solution.

A higher alcohol concentration precipitates the alum.

The Suspending Capacity of Colloidal ALUMINUM MAGNESIUM SILICATE

By Joseph J. Pienta, Jr.*
Arnold D. Marcus†
and Byrl E. Benton‡

THE INTRODUCTION of colloidal aluminum magnesium silicate under the name Veegum[1] and the wide claims made for pharmaceutical applications of the material led to this investigation. It was decided to compare the suspending ability of Veegum with the suspending capacity of other agents known to have definite pharmaceutical application. This study was not directed toward any specific preparation, but in general toward various types of substances used in suspension form.

While this study was nearing completion, Huyck (1) reported the result of his investigations of Veegum. Although there are differences between some of the data obtained in this investigation and that reported by Huyck, there is general overall agreement where the two studies overlap.

The following substances were used to determine the suspending capacities of Veegum: barium sulfate, 10%; kaolin, 20%; prepared chalk, 6%; calamine, 8% and zinc oxide, 8%.

The Veegum was used in the form of a 5% w/v magma. The amount of the 5% magma required in each instance was determined by the percentage concentration of Veegum desired in the final product.

The Veegum magma was prepared as follows: Veegum-HV, 50 Gm.; and water, a sufficient quantity to make 1,000 cc. To 800 cc. of boiling water add the Veegum-HV in divided (5 Gm.) portions. Agitate vigorously during addition by means of a high-speed electric mixer. After all the Veegum-HV has been incorporated, bring the volume to 1,000 cc. with water.

The various samples for study were prepared as follows: (*a*) *Calamine and Zinc Oxide.*—Calamine, 16 Gm.; zinc oxide, 16 Gm.; glycerin, 20 cc.; Veegum magma and water, of each a sufficient quantity to make 200 cc.

Thoroughly mix the calamine and zinc oxide. Triturate the mixed powders with the glycerin and a sufficient quantity of the Veegum magma to yield a smooth paste. Slowly incorporate the remainder of the magma with constant mixing. In the same manner add a sufficient quantity of distilled water to make 200 cc.

A 100-cc. portion of calamine lotion U. S. P. XIII was used as a control for this series of experimental samples.

(*b*) *Prepared Chalk.*—Prepared chalk, 12 Gm.; saccharin sodium, 0.06 Gm.; cinnamon water, 80 cc.; Veegum-HV magma (5%) and water, of each a sufficient quantity to make 200 cc.

Dissolve the saccharin sodium in the distilled water and mix this thoroughly with the magma. Levigate the prepared chalk with a sufficient quantity of this mixture to form a smooth paste. Slowly, and with constant agitation, add the rest of the cinnamon water-magma mixture. In the same manner incorporate a sufficient quantity of distilled water to make 200 cc.

Chalk mixture U. S. P. XIII was used as a control for this series of experimental samples.

(*c*) *Kaolin 20%.*—Kaolin, 40 Gm.; Veegum-HV magma (5%) and water, of each a sufficient quantity to make 200 cc.

Levigate the kaolin with a sufficient quantity of the magma to make a smooth paste. Slowly incorporate the rest of the magma and a sufficient quantity of distilled water to make 200 cc.

(*d*) *Barium Sulfate.*—Barium sulfate, 20 Gm.; Veegum-HV magma (5%) and water, of each a sufficient quantity to make 200 cc.

Mix the barium sulfate with a sufficient quantity of the magma to make a smooth paste. Slowly incorporate the rest of the magma and sufficient distilled water to make 200 cc.

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Presented before the Section on Practical Pharmacy, A.PH.A. Convention, Buffalo, August, 1951.
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[1] Veegum-HV, Vanderbilt Laboratories, New York.

The experimental samples and the controls were stored at 25° ± 2° in 100-cc. cylindrical graduates, tightly closed with rubber stoppers.

The degree of separation is reported as the number of cc. of clear or slightly opalescent supernatant liquid between the surface of the suspension and the 100-cc. graduation on the cylinder.

Discussion

Calamine and Zinc Oxide.—Those preparations containing 1.5 and 2.0% Veegum exhibited a greater degree of separation than did the control after a seven-week period (Table I). However, up to the second week of observation, the preparation containing 1.5% Veegum exhibited less separation than did the control. The sample containing 2% Veegum was superior to the control for the first week and practically equal to it in degree of suspension at the end of a three-week period.

The samples containing 2.5 and 3.0%, respectively, of Veegum were far superior to the control at all intervals of observation. These results seem to indicate that Veegum is superior to bentonite as a suspending agent for the calamine-zinc oxide combination. Veegum would also appear to be more effective than methylcellulose and sodium alginate in a suspension of this nature, according to published data (2, 3).

Suspensions of Prepared Chalk.—The experimental results indicate that Veegum in concentrations ranging from 1.5 to 3%, results in a suspension which possesses greater stability than the suspension obtained when prepared chalk is suspended in the manner designated in U. S. P. XIII (Table II). Veegum appears to be a good suspending agent for prepared chalk. According to other work done in this laboratory, but not as yet published, Veegum appears to be a much more efficient suspending agent for prepared chalk than is Methocel 50 cps. or sodium alginate.

Suspensions of Kaolin.—Both Veegum and Methocel 50 cps. appear to be equally effective in suspending kaolin (Tables III and IV). However,

TABLE I.—SUSPENSION OF CALAMINE-ZINC OXIDE WITH VEEGUM-HV

% Veegum	Amount of Separation in cc. at Listed Intervals						
	Days		Weeks				
	1	3	1	2	3	5	7
1.5	0	5	14	19	24	28	30
2.0	0	2.5	11	16	20	22	24
2.5	0	0	1	3	4	5	6
3.0	0	0	1	3	4	4	4
Control	16	19	20	21	21	21	21

TABLE II.—SUSPENSION OF PREPARED CHALK WITH VEEGUM-HV

% Veegum	Amount of Separation in cc. at Listed Intervals						
	Days		Weeks				
	1	3	1	2	3	5	7
1.0	7	10	21	24	26	32	34
1.5	1	2	3	4	5	7	7
2.0	0	0	2	2	2	2	2
2.5	0	0	0	1	1	1	1
3.0	0	0	0	0	0	0	1
Control	1	3	5	7	9	16	20

TABLE III.—SUSPENSION OF KAOLIN WITH VEEGUM-HV

% Veegum	Amount of Separation in cc. at Listed Intervals						
	Days		Weeks				
	1	3	1	2	3	5	7
1.0	1	3	7	10	16	18	19
1.5	0	1	1.5	3	6	7	7
2.0	0	0	1	1	3	3	3
2.5	0	0	0	1	2	2	2
3.0	0	0	0	0	0	[a]	[a]

[a] Very slight, less than 1.0 cc.

TABLE IV.—SUSPENSION OF KAOLIN WITH METHOCEL 50 CPS

% Methocel	Amount of Separation in cc. at Listed Intervals						
	Days		Weeks				
	1	3	1	2	3	5	7
1.0	0	0	1	3	5	6	8
1.5	0	0	1	2	3	4	4
2.0	0	0	0	1	2	3	3
2.5	0	0	0	0	1	2	2
3.0	0	0	0	0	1	2	2

Authors' Summary

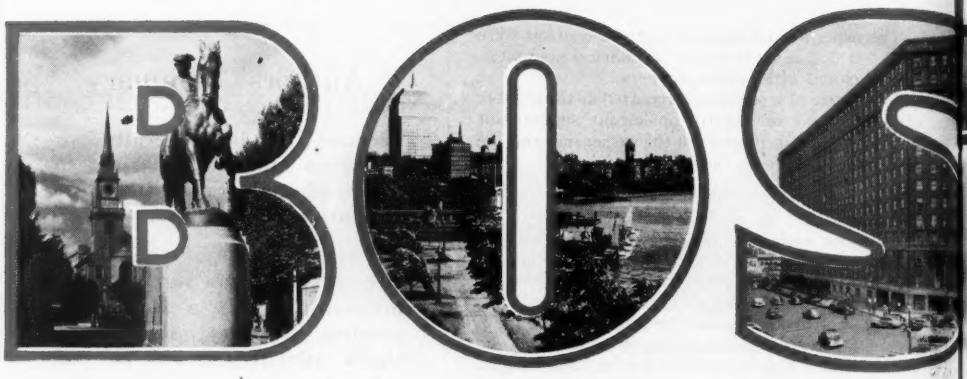
Veegum-HV is generally superior to Methocel 50 cps., sodium alginate, and bentonite as a suspending agent.

In view of the fact that Veegum-HV allows a more elegant preparation with a greater dispersion stability, its use in chalk mixture should be considered.

It is suggested that a study be made using the N. F. VII formula for calamine lotion with the exception that 2.5% Veegum-HV be used to replace the bentonite magma.

Veegum should be considered for inclusion in one of the official compendia.

(Continued on page 427)



WELCOMES AMERICAN PHARMACEUTICAL A

Greetings from President Franzoni

FROM ALL appearances our convention at Boston, August 22–27, will be the best attended of the 101 meetings which this ASSOCIATION has held. However, it will be outstanding in more than the matter of attendance.

Our program has been arranged, as usual, with the interest of all our own members in mind, and this includes, of course, the matter of vocational interest as well as the timeliness of the problems which we are gathering to solve with the aid of group thinking.

The scientific, professional, and economic interests of our members are well taken care of in the program of the various sections with the total number of papers to be presented numbering in excess of 200.

But we are also going to hear from outstanding members of the medical and allied professions who will bring us up to date on the thinking of the American Medical Association, the American Hospital Association, the Civil Defense authorities, the Military Services, and others.

In addition to the addresses of the President, the President-Elect, and the Chairman of the House of Delegates—all of whom will review the internal affairs of the ASSOCIATION and project plans for the future—our general sessions will include consideration of current affairs in public health as they apply to our own profession and the part it plans in developing better medical care for all the people.

Special attention will be focused on the address of Dr. E. Cuyler Hammond, of the American Cancer Society, who will bring us the latest information on the role of tobacco in cancer.

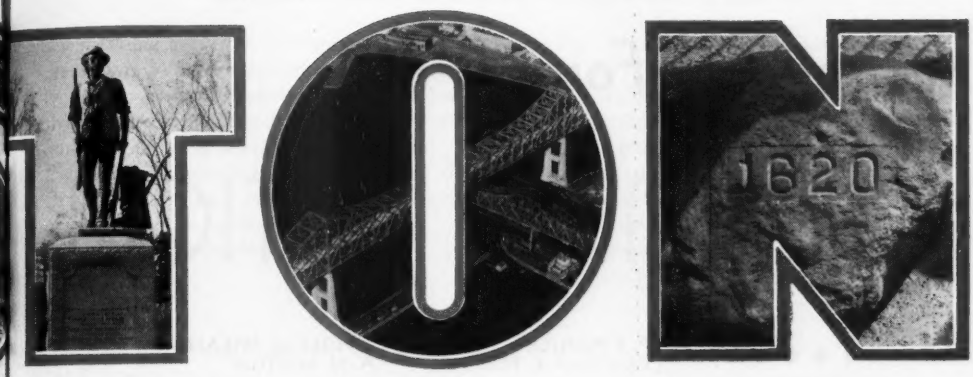
We will also have the pleasure of hearing from our honorary president, Mr. Eli Lilly, Chairman of the Board of Eli Lilly and Co. Other highlights will include a discussion of recent court actions bearing on the distribution of drugs, both from an economic and legal point of view. We are fortunate in having Joseph H. Stamler, the attorney who won the recent court decisions dealing with the part played by Fair Trade laws on prescription economics, and the effort to obtain definitions in state pharmacy acts which would make it possible for drugs to be sold anywhere without professional supervision.

Our Boston members have prepared a very complete and elaborate entertainment for the ladies. We will also welcome, for the first time, an official Pharmacy Student Section of the ASSOCIATION. A splendid program has been arranged for this Section.

Not only is the Boston Convention an opportunity for a refresher education on the latest developments in practical and scientific pharmacy pharmaceutical education and legislation, pharmaceutical economics and historical pharmacy, but it offers vacation opportunities and the possibility of informal discussions with fellow pharmacists and renewal of friendships which have been made over the years.

I extend a most cordial welcome to all of you to meet with us in Boston and to join with us in making this a most outstanding and productive convention.

F. ROYCE FRANZONI,
President



EUTAL ASSOCIATION'S 101st CONVENTION

Greetings from Women's Auxiliary

TO THE members and friends of the Women's Auxiliary of the AMERICAN PHARMACEUTICAL ASSOCIATION:

Are your plans all made to be with us in Boston? We are certainly looking forward with pleasure to seeing all those many close friends we have known in the past years and to forming new ties such as can only be made in our Auxiliary group.

As you know, if you have read the JOURNAL during this past year, two of our very dear members, Mrs. George A. Moulton, our honorary president, and Mrs. H. M. Whelpley will not be with us. God has seen fit to take them to be with Him.

Have you visited Washington, D.C., this year? Did you visit the AMERICAN PHARMACEUTICAL ASSOCIATION Headquarters? Did you see the Auxiliary additions to the Ladies' Lounge?

Of course you know that your district chairman has, or should have, contacted the dean of your college of pharmacy about our Student Loan Fund. Our first vice-president requested each district chairman to explain the use of this fund to the dean of each pharmacy school in your district. We very much hope that this was done as we want the fund to be used.

Suggested changes and additions to our Constitution are ready for your approval or disapproval. Be sure you are at the business meetings to cast your vote.

The Women's Auxiliary was formed to bring the ladies together for work and play. The ladies of Boston are certainly planning plenty of play for you so please plan to arrange your time so that you can give a little extra time to the work.

It costs but one dollar a year to become a member of this important group. Be sure that you are a member. Your A.PH.A. member may pay for you while at the registration desk or you may do it yourself. One or more of our members will be at the table to give you your membership card. We want you and you should want us.

This message is being written several weeks before you are due in Boston but Boston folks are very busy and full of excitement over your expected visit.

Remember this is *your* convention. You do your part to make it a success and Boston folks will do theirs.

Sincerely,
DORIS P. KELLEY, *President*

New Ocean House, Swampscott, Mass.

A Proposed Formula For CALAMINE LOTION

by P. J. PANTLE*, PRISCILLA E. PERRINS*, MYRTLE M. WIEAND*, A. N. MARTIN*

Authors' Summary

A number of formulas for calamine lotion, proposed to replace the product now official, have been tested and evaluated.

A satisfactory lotion requires the presence of a wetting agent in addition to the suspending agent to produce optimum properties of spread and covering as well as stability of the suspension. Dispersing agents, particularly 1 per cent of Darvan No. 1, may also be valuable in promoting stability.

The formula employing 2 per cent sodium carboxymethylcellulose-type 70 medium viscosity, 0.5 per cent Tween 20, 8 per cent zinc oxide, 8 per cent calamine, 3 per cent glycerin, and water, *q. s.* shows the most acceptable properties and is recommended for further study and consideration.

CALAMINE LOTION and its modifications such as phenolated calamine lotion hold an important place as useful medicaments in the management of superficial cutaneous conditions and in the practice of dermatology. Since the first report of their use about 1907 they have become popular remedies.

Different formulas for these products have been reviewed in recent publications (1–4) and new formulas (5, 6, 7) have been proposed to replace the unsuitable products. It was the purpose of this experiment to evaluate certain of these preparations together with several original formulas and to make recommendations concerning the adoption of a new official lotion.

Experimental

Procedure.—A 200-cc. sample of each formula was prepared. Half the resulting lotion was stored in a four-ounce prescription bottle. To the remaining portion was added 2 per cent liquefied phenol and the product was also stored. Each product was evaluated at the time of preparation for viscosity, foaming, spread and appearance on the skin, odor, and stability toward phenol. After standing for a period of time, the products were again evaluated for stability against sedimentation, ease of redispersion if sedimentation had occurred, and any apparent changes in physical properties.

Each preparation contained:

Zinc oxide	16
Calamine	16
Glycerin	6
Suspending and other agents, *q. s.* (see Table I)	
Distilled water, *q. s.*	200

The zinc oxide and calamine were mixed and passed through a No. 40 sieve. Generally, the suspending agent was dispersed in warm water with the aid of an electric mixer and the other ingredients were incorporated into the dispersion. Each product was passed twice through a hand homogenizer.

The properties of three groups of preparations were studied: (*a*) The first group contained only

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a suspending agent in addition to the basic ingredients; (*b*) Since many suspending agents are lyophobic, a surface active agent was added to the second group to reduce interfacial tension and improve spreading qualities on the skin; (*c*) Deflocculating agents were added to the third group to retard agglomeration of particles and improve stability against sedimentation.

The results are listed in Table I.

Discussion

Results of this study indicate that most suspending agents alone are not sufficient to produce satisfactory calamine lotions. The addition of a wetting agent to the formula, however, helps to maintain a good spreading quality and, in certain instances, improves the stability of the suspension. The most satisfactory formula in this investigation employed 2 per cent w/v sodium carboxymethylcellulose, medium viscosity, as the suspending agent and 0.3 per cent w/v Tween 20 as the wetting agent. This preparation showed good spreading and covering properties on the

(Continued on page 448)

TABLE I.—CALAMINE LOTION FORMULAS AND PROPERTIES

Formula Number	Suspending Agent(s)	Wetting Agent	Deflocculating Agent	Spreadability	Compatibility with Phenol	Stability Against Sedimentation	Remarks
1[a]	Kelgin[b] 1%	....	....	Poor	Good	Good	....
2	Veegum, High Viscosity[c] 1%	....	....	Good	Thickens	Poor	....
3	Veegum HV 2%	....	....	Good	Thickens	Fair	Too viscous
4	Veegum HV 3%	....	....	Good	Thickens	Good	Too viscous
5	Veegum HV 1%, Methocel[d] 0.15%	....	....	Good	Good	Poor	....
6	Veegum HV 2%, Methocel 0.15%	....	....	Good	Good	Fair	Too viscous
7	Veegum HV 3%, Methocel 0.15%	....	....	Good	Good	Good	Too viscous
8	Kelcosol[e] 0.5%	....	....	Poor	Good	Poor	....
9	Myrj 45[f] 2%	....	....	Good	Poor	Poor	Excess foaming
10	Myrj 45 4%	....	....	Good	Poor	Good	Too viscous
11	Tween 65[f] 2%	....	....	Poor	Poor	Poor	Excess foaming
12	Kelgin 1.25%	Aerosol OT[g] 0.05%	....	Fair	Good	Fair	Objectionable odor
13	Kelgin 1.25%	Duponal C[h] 0.25%	....	Fair	Good	Poor	Excess foaming
14	Kelgin 1.25%	Tween 20[f] 0.5%	....	Good	Good	Good	Viscous
15	Veegum HV 2.5%, Methocel 0.15%	Tween 20 0.1%	....	Good	Good	Good	Too viscous
16	Kelcosol 1%	Tween 20 0.4%	....	Good	Good	Poor	....
17	Kelcosol 1.25%	Tween 20 0.4%	....	Good	Good	Fair	Viscous
18[i]	CMC-MV[j] 2%	Aerosol OT 0.065%	....	Good	Good	Poor	Objectionable odor
19	CMC-MV	Duponal C 0.25%	....	Fair	Good	Good	Excess foam, too viscous
20	CMC-MV 2%	Tween 20 0.3%	....	Good	Good	Good	....
21	CMC-MV 1%, Kelgin 0.6%	Aerosol OT 0.05%	....	Fair	Good	Poor	Objectionable odor
22	CMC-MV 1%	Tween 20 0.3%	....	Fair	Good	Fair	....
23	Methocel 0.15%, Bentonite 2%	Tween 20 0.2%	....	Good	Good	Poor	Excess foam
24	CMC-MV 1%	Tween 20 0.3%	Marasperse C[k] 0.5%[m]	Poor	Poor	Poor	Dark color
25	CMC-MV 2%	Tween 20 0.3%	Darvan No. 1[n] 1%[m]	Good	Good	Good	....

[a] Osborn, G. E., and DeKay, H. G. (see ref. 5).
[b] Sodium alginate, Kelco Co.
[c] R. T. Vanderbilt Co., Inc.
[d] Methyl cellulose 15 c. p. s., Dow Chemical Co.
[e] Kelco Co.
[f] Atlas Powder Co.
[g] Dioctyl sodium sulfosuccinate, American Cyanamid Co. Used in form of 1% aqueous solution.
[h] Sodium lauryl sulfate.
[i] Goldstein, S. W. (see ref. 3)
[j] Sodium carboxymethylcellulose-type 70, medium viscosity, Hercules Powder Co.
[k] Marathon Corporation.
July 1954
[m] Based on weight of dry solids.
[n] R. T. Vanderbilt Co., Inc.

Versatile Lotion Vehicle

by WILLIAM L. SCHOBEL*
and
J. LEON LICHTIN†

THE PROBLEM of a vehicle for dermatological preparations has been the object of many recent investigations (1, 2). The vehicle for such medication is usually a lotion or an ointment, either of which may or may not be an emulsion. The opinion has been expressed that, compared to the more solid preparations, a lotion is a superior type of external vehicle because of the lesser amount of massage required for its application and because of the smaller amount of residue it leaves on the skin (3). Consultation with several dermatologists corroborated this view. In addition, the preference was expressed for a lotion whenever medication is required for areas covered with hair. Of the possible types of lotion vehicles, an oil-in-water type emulsion was selected for this study because of the belief that such a product would efficiently carry medication into the skin (4), be compatible with a wider variety of substances, and could be made more cosmetically elegant.

Criteria by which to evaluate topical medication have been reported (3, 5–9). The following should be the properties of a satisfactory lotion vehicle: (*a*) bright white with a minimum amount of foam, (*b*) stainless, greaseless, and easily removed from the skin, (*c*) viscosity sufficient for adequate suspension, but of such consistency to be poured from an orifice of the normal size prescription bottle, (*d*) stable for an adequate length of time at a reasonable range of temperatures, (*e*) compatible with a large variety of medicaments, (*f*) the *p*H near or slightly below neutrality to simulate the *p*H of the skin (which lessens the chance of irritation), (*g*) simplicity of preparation, (*h*) ease of procurement of ingredients, and (*i*) economy of cost.

Presented before the Section on Practical Pharmacy, A.PH.A. Convention, Salt Lake City, Utah, August, 1953.

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Preparation of Lotion

Lotion Vehicle A

Methylparaben	0.25
Propylparaben	0.15
Sodium lauryl sulfate	10.00
Propylene glycol	120.00
Stearyl alcohol	25.00
Light liquid petrolatum	250.00
Distilled water	595.00
To make about	1,000.00

Melt the stearyl alcohol on a water bath, add the liquid petrolatum, and heat to 70°. Dissolve the methyl and propyl parabens in hot water, add the sodium lauryl sulfate and the propylene glycol. Adjust the aqueous solution to 70°. Pour the mixture containing the water into the oil phase, in a fine stream, with continuous stirring. Continue to stir until the temperature is below 45°.

Lotion Vehicle B

Methylparaben	0.25
Propylparaben	0.15
Span 20[a]	55.00
Tween 20[b]	25.00
Sodium lauryl sulfate	10.00
Stearyl alcohol	21.00
Light liquid petrolatum	400.00
Distilled water	500.00
To make about	1,000.00

Melt the stearyl alcohol on a water bath, add the Span 20, light liquid petrolatum, and heat to 70°. Dissolve the methyl and propyl para-

[a] Sorbitan monolaurate by Atlas Powder Co., Wilmington, Delaware.
[b] Polyoxyethylene sorbitan monolaurate by Atlas Powder Co., Wilmington, Delaware.
Both available in small lots from R. F. Revson Co., 243 W. 17th St., New York 11, N. Y.; and Summers Laboratories Inc., Ambler, Pa.

bens in hot water, add the Tween 20 and the sodium lauryl sulfate. Adjust the aqueous solution to 70°. Pour the mixture containing the water in a fine stream into the oleaginous mixture, stirring constantly. Continue to stir until the temperature is below 45°.

Another method of preparation was devised for preparing lotion *B* which involved the extemporaneous mixing of stock oil and aqueous phases. The use of two stock phases does offer the advantages of ease of levigation and incorporation of medicaments into the oil phase. This method was, however, disregarded since the product obtained by this technique was not as easily reproduced as the one made by the previously outlined procedure.

Evaluation of Lotions

Lotion *A*, being a modification of the official hydrophilic ointment, is similar in properties since the changes in the formula involve merely the quantity of stearyl alcohol and the use of light liquid petrolatum in place of white petrolatum. Sodium lauryl sulfate is used as the primary emulsifier. The stearyl alcohol acts as the secondary emulsifier, adding whiteness, stability, and body to the lotion vehicle. Emollient effects are supplied by the emulsified light liquid petrolatum. The petrolatum phase was stated by Zopf (6) to smooth, soften and add "slip" to the hydrophilic base. The lotion vehicle is protected from microorganisms by the addition of the methyl and propyl parabens.

The most important difference between the two lotions is that lotion *B* possesses a blend of Span 20 and Tween 20 with sodium lauryl sulfate as primary emulsifiers. The presence of this blend was intended to make the lotion more compatible with acidic substances. The sodium lauryl sulfate, on the other hand, permits the addition of phenol and resorcinol, which otherwise would be incompatible with the lotion. In addition, sodium lauryl sulfate aids in the removal of the lotion from the skin.

Both lotion vehicles *A* and *B* appear as bright white, stable, homogeneous, and cosmetically elegant emulsions. Lotion vehicle *B* remains on the surface of the skin longer than lotion *A* and appears to have greater emollient properties. On the other hand lotion *A* vanishes more readily into the skin. Both preparations were stable without creaming on the shelf at least two months at 20–30°. Upon refrigeration at 9°, the vehicles remained pourable after twenty-four hours. Exposure of the lotions to warm temperatures of about 33° did not affect them adversely. The *p*H of lotion vehicle *A* was 7.45, and *B* had a *p*H of 7.15. Upon dilution of one part of lotion vehicle *A* with 2 parts of distilled water, the increase of *p*H was 0.45; in the case of *B*, the *p*H rise was 0.35.

Tests for compatibility were made with both lotions. The various substances were placed in a mortar to which was gradually added the lotion vehicle. Thorough trituration was used in order to insure an even dispersion. To each of the ingredients tested, sufficient lotion vehicle was added to make a volume of 150 cc. One half of each test suspension was immediately placed into a three-ounce prescription type bottle which was shaken at twenty-four hour intervals. The other half of the suspension was placed into a similar bottle which was not disturbed for a period of fourteen days.

The following dermatological medicaments were tested with the lotion vehicles in the manner described above:

	Per Cent
Zinc oxide	10
Sulfur, precipitated	5
Salicylic acid	2
Oil of cade	5
Ammoniated mercury	2
Phenol	1
Resorcinol	2
Coal tar solution	5
Ichthammol	10
Ethyl aminobenzoate	5
Aluminum acetate solution	10
Sodium borate	2

Both lotion vehicles are compatible with zinc oxide, sulfur, salicylic acid, oil of cade, ammoniated mercury, phenol, resorcinol, coal tar solution, ichthammol, ethyl aminobenzoate, and sodium borate. Practically no sedimentation or creaming occurred in the bottles which stood undisturbed, or in those which were shaken daily.

Only a very slight creaming occurred in the case of ichthammol (lotion *A*), and coal tar solution (lotion *B*). Zinc oxide (lotion *B*) produced a slight sedimentation. In all of these instances, it required about forty-eight hours for the changes to occur. Gentle agitation, however, easily restored the mixtures.

Phenol and resorcinol caused some slight creaming in both lotions to occur within one or two days. Gentle agitation easily restored the preparations. It is to be noted that the presence

(Continued on page 430)

The NITROFURANS

By GEORGE S. ROGERS, M.D.*

THE ERA of medical history in which we are living is proving to be most exciting—including as it does, the intensive search for and discovery of drugs specific in their antibacterial activity. At the present time these compounds fall into two categories—the so-called chemotherapeutic agents of synthetic origin including sulfonamides and nitrofurans, and the antibiotics.

The history of specific drug therapy of human infection actually dates back to the latter half of the previous century when Ehrlich discovered the organic arsenicals for the treatment of syphilis. Originally hoped to be a universal agent, this group proved disappointing in other diseases. However, intensive research did not begin until the second decade of this century. The Germans and French were first with the discovery of sulfonamides; the English followed closely with the first antibiotic; and finally, as the only purely American contribution, came the antimicrobial nitrofurans.

The furans were selected for chemotherapeutic investigation because of mention of some bacteriostatic activity and because of the readily available precursor materials from agricultural by-products. Then followed months of unfruitful endeavor as one furan derivative after another was synthesized and screened for antibacterial action without success. Finally, however, one compound was found to possess remarkable activity. Scrutiny of its structure revealed its distinguishing characteristic to be nitration at the number 5 atom of the furan ring. Subsequent studies revealed this particular substitution to be essential; all such compounds are active but vary in degree with the nature of the side chain substituted at the 2-position.

This was only the beginning—the long series (over 300) of synthesized nitrofurans were classified as to their degree of test-tube antibacterial action. Those most active were screened against systemic infections in mice. At the same time the compounds were being tested for toxicity in laboratory animals to select those that could be predicted as safe for human use. These tests included systemic toxicity, lack of irritation, absorption and noninterference with healing. At the conclusion, only a few compounds had survived this rigorous screening and were ready for clinical trial.

It was coincidence that at this time the needs of the U. S. Army provided a large series of patients suited to such trial—great numbers of men with refractory infected battle wounds from the fields of Normandy then hospitalized in England. In this clinical study, one compound proved superior to the others in clearing these wounds after local application. This was the seventh of the total series, nitrofuraldehyde semicarbazone, or Furacin (nitrofurazone N. N. R.).

Since that time nitrofurazone, especially in the form of the soluble dressing, has been widely and successfully used in preventing and treating infected wounds and burns. Other dosage forms have been introduced and are proving equally effective in infections involving the eye, ear, nose, vagina, bladder, and urethra. Nitrofurazone has enjoyed similar use and success in veterinary medicine, especially in the treatment of mastitis in cattle and as a feed supplement to prevent and control an economically extremely important protozoal intestinal infection of poultry—coccidiosis.

A program of screening the nitrofurans for activity against fungi was also instituted, and after passing the rigorous basic screening tests, nitrofurfuryl methyl ether (Furaspor) was made available and is proving successful in the treatment of superficial fungus infections. At this time another nitrofuran has cleared the laboratory

(Continued on page 432)

Presented before the Washington, D. C., Section of the A.PH. A., January 13, 1954.

* Medical Department, Eaton Laboratories, Norwich, N. Y.

ZOONOSES

and the Public Health

by SAMUEL W. GOLDSTEIN

BUBONIC PLAGUE is transmitted by rats; psittacosis is transmitted by birds, the first-discovered culprit lending its name to "parrot fever"; the manner of transmission of rabies from rabid animals to man: these are well-known facts. Less well-known is the term "zoonoses" (zo-o-no-seez) which denotes these and about 80 other diseases of animals transmissible to man. Bovine tuberculosis, brucellosis, anthrax, leptospirósis, anthropod-borne virus encephalitides, Q fever, hydatidosis, salmonellosis, and tularemia are other important zoonoses in large areas of the world.

It is evident that the prevention and eradication of zoonoses in human beings can be accomplished in large part by control of these diseases in animals. That is the important public health function of the practitioner of veterinary medicine, the "animal doctor" whose rôle in preventive medicine is often overlooked.

A monograph published by the World Health Organization[1] mentions more than 80 zoonoses. It indicates that ten or fifteen are most important to European countries, and devotes special attention to five of these diseases. The report states that bovine tuberculosis is responsible, in some countries, for more than 10 per cent of all cases of human tuberculosis; that brucellosis can be ruinous for agricultural economy besides causing a debilitating disease in the human; that leptospirosis, the scourge of rice-growing areas, also affects butchers, millers, farmers, and owners of pets (dogs); that Q fever is frequent among butchers, shepherds, and veterinarians; and that rabies is still a serious problem in many parts of the world. Only time will show how helpful can be the new Antirabies Serum, developed by Lederle Laboratories, as an adjunct to the vaccine for the control of this zoonosis.

Zoonoses is one of three topics under "Public Health Problems in Rural Areas" which will be discussed in the Assembly of the WHO in the coming year. This problem is naturally more serious in that group of the population that has more contact with animals. Children living on farms can contract bovine tuberculosis by consumption of raw milk or even through the respiratory tract. Brucellosis, also known as melitococcus, undulant fever, Maltese fever, or Bang's disease, according to the strain of microorganism involved, is very frequent among cows, pigs, goats, and sheep; and is usually transmitted to man through raw milk or fresh cheese. Among the animal population it causes abortion and sterility. In man, the sulfonamides and antibiotics have greatly aided the manner of treatment of the afflicted. Leptospirosis, also known as marsh fever or seven-day fever, is a serious human infection which may resemble infectious hepatitis and is sometimes fatal. The parasite, found in rodents, is transmitted to man through mud, stagnant water, and improperly treated water in swimming pools. Good results in the treatment of the disease are obtained with penicillin, streptomycin, and aureomycin.

Q fever was identified in 1937 in Australia and was called Queensland or "Query" fever. It is found in sheep, cows, oxen, and goats, but unlike bovine tuberculosis, it does not seem to markedly affect the animals; while in man the disease becomes evident as an atypical pneumonia

[1] *WHO Monograph Series, No. 19.* Columbia University Press, International Documents Service, New York.

(Continued on page 442)

FROM THE SECRETARY'S DIARY FOR JUNE, 1954

1st Now comes the merry month of June with its brides and roses and those rare days of perfect weather memorialized in poetry. It is also the most popular month for state pharmacetutical association conventions, and that means much work for many people, be they speakers, exhibitors, entertainers, officers, managers, or committee workers. For the A.PH.A. it means the beginning of intensive preparations for the August Convention and, for President Franzoni, much travel to address state conventions. So the long distance wires are doing overtime duty.

2nd Today discussing many pending problems on the economic front with visitors from the retail, manufacturing, and distributing sectors of the drug industry, covering both human and veterinary drug products. Also active with staff programs covering our own publications and promotions.

8th After the usual busy Monday, crowded with Convention mail, off to Boston for a series of conferences on the Convention program and arrangements. This evening receiving the room assignments for the Section and affiliated group meetings at the Statler.

9th This morning by rail to Providence, R. I., to the Commencement Exercises of the Rhode Island College of Pharmacy, where President Claflin did a superb job of bringing together the heads of all colleges in Rhode Island to see his pharmacy boys and girls receive their degrees. An inspiring and scholarly address to the graduates by Vice-President Bigelow of Brown University featured these exercises. In the afternoon meeting with members of the Boston Convention Committee.

10th In the forenoon attending the New England College of Pharmacy Commencement and delivering the address to the graduates, with ailing College President Martin Adamo listening in at his home over a specially arranged closed telephone circuit. In the afternoon a meeting of the A.PH.A. Convention Committee with a full attendance and much enthusiasm for the coming meeting.

11th All this day and yesterday working with the Hotel Statler Staff, the Boston Convention Committee, Sam Silverman, and members of the A.PH.A. Student Branch and General Convention Committees, on program and plans for the August meeting, and the telephone almost as busy as it is in Washington.

14th This morning in New York and leaving for Pearl River with President-Elect Newell Stewart and a group of pharmaceutical journalists and others to assist in the formal opening of the old apothecary shop which Dr. John Bird has restored in one of the Lederle Laboratory buildings on the extensive grounds of this company. The opportunity to visit the newly equipped Lederle manufacturing and packaging facilities was thoroughly enjoyed, as was also the visit with President Malcolm and the luncheon chat with Sales Director Wendt.

15th This evening addressing the Pharmaceutical Libraries Section of the Medical Libraries Association who are gathered in Washington for their annual convention, and enjoyed meeting so many pharmacy college and pharmaceutical industry librarians. They are responsible for much progress in spreading prompt information about new drugs.

18th Visitors of the past two days and today include public relations counsel of several state and other pharmaceutical associations who are anxious to absorb the necessary pharmacy background to enable them to apply their publicity techniques effectively. Also especially pleased to have so many pharmaceutical librarians come to visit our Headquarters today.

23rd At luncheon today in the Interior Building with the outgoing and incoming secretaries of the Fine Arts Commission, which regulates, more or less, the architectural design of buildings in the area of Washington that is subject to permanent beautification. This area includes the location of our building. Now off to Chicago for the meetings of the American Council on Pharmaceutical Education.

26th Back in Washington after an important two-day session of the American Council on Pharmaceutical Association Education in Chicago where the list of accredited colleges was revised in the light of recent inspection visits and reports supplied by members who visited many colleges as a part of the Council's routine procedure.

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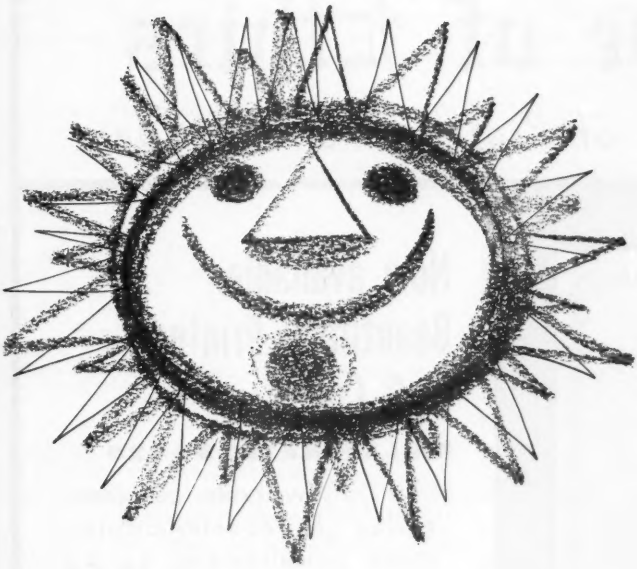

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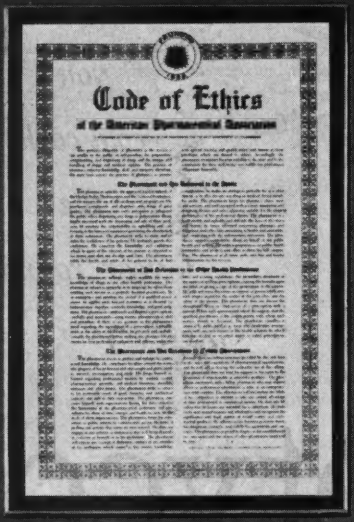

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it should be noted that a 1% mucilage of Methocel 50 cps. is far superior to a 1% magma of Veegum in suspending capacity. Our observations indicate that a 3% concentration of Veegum is slightly superior to 3% Methocel 50 cps. insofar as suspending capacity is concerned.

TABLE V.—SUSPENSION OF BARIUM SULFATE WITH VEEGUM-HV

% Veegum	Amount of Separation in cc. at Listed Intervals — Days		Weeks				
	1	3	1	2	3	5	7
1.0	3	6[a]	[b]	91	91	[b]	[b]
1.5	0	1[a]	4	5	13[c]	[b]	[b]
2.0	0	4[a]	8	10	14	[b]	[b]
2.5	0	0	1	3	3	3	4
3.0	0	0	0	0	1	1.5	1.5

[a] Some caking in the bottom of the graduate was noticed.
[b] No readings were taken.
[c] Heavy caking throughout the suspension was noticed and plainly evident.

TABLE VI.—SUSPENSION OF BARIUM SULFATE WITH METHOCEL 50 CPS

% Methocel	Amount of Separation in cc. at Listed Intervals — Days		Weeks				
	1	3	1	2	3	5	7
1.0	[a]	[b]	[b]	[b]	[b]	91	92
1.5	91[c]	[b]	[b]	[b]	[b]	[b]	91
2.0	91[c]	[b]	[b]	[b]	[b]	[b]	91
2.5	31[c]	[b]	[b]	[b]	[b]	[b]	91
3.0	0[d]	[b]	[b]	[b]	[b]	[b]	90

[a] Very heavy caking and striations in suspension.
[b] No observations made.
[c] Heavy caking in bottom of graduate.
[d] No clear separation but very definite striation.

Suspensions of Barium Sulfate.—It is evident from Tables V and VI that Methocel 50 cps. in concentrations up to 3% did not possess any great ability to suspend 10% of barium sulfate. However, Veegum in concentrations ranging from 1.5 to 3% proved to be a very efficient suspending agent for the barium sulfate.

The efficiency of Veegum as a suspending agent for a number of different solids is due, perhaps, to its property of forming thixotropic gels upon standing. These gels are, however, easily broken upon the slightest agitation. Upon standing the Veegum will again form the characteristic thixotropic gel.

Veegum magma does not require a preservative and the suspensions prepared with Veegum exhibited no signs of mold or bacterial growth. The same is true of Methocel. The inorganic nature of Veegum gives it the advantage of heat stability.

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(2) Osborn, G., and DeKay, H. G., *ibid.*, **2**, 420(1941).
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Coal Tars

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chronic dermatoses it may be irritating in addition to having a high index of allergic sensitivity. The naphthalenes compose one of the most important commercial constituents of tar and many companies intentionally make a tar of high naphthalene content. Many coke tars also are high in naphthalenes and are irritating.

Downing and Bauer (6) have shown that of all tars tested therapeutically, the high-temperature types were preferable. This may be explained on a basis of tar acid-naphthalene content. In general a high tar-acid tar will irritate the eroded acutely inflamed skin. Downing showed that a high-temperature crude coke-oven tar, obtained from Kopper's Company, Tar and Chemical Division, from their Everett, Massachusetts, plant, was most useful in acute vesicular dermatoses; whereas, a high-temperature, vertical retort tar of Kopper's Pittsburgh plant was preferred in chronic, scaly dermatoses, such as psoriasis.

While they do not offer any reason, this too might well be due to variation in the tar acid-naphthalene content. The tar with low tar-acid content (14%) and medium naphthalene content (3%) gave relief from pruritus with involution of acute vesicular eruptions; whereas the tar with a high tar-acid content (50%) and little or no naphthalene fraction was most effective in psoriasis, lichen simplex, and similar chronic, scaly dermatoses.

The logic of this interpretation has been put to practical use in the preparation of two coal tar pastes:[1] one for acute vesicular dermatoses with a low tar-acid content, the other with a high tar-acid content for psoriasis and chronic dermatitis. In color they are both almost colorless and do not stain. While both are prepared from whole crude coal tar, if one has a good olfactory sense he can detect the predominant odor of phenols and cresols in one, and the faint aromatic scent of naphthalenes in the other. The vehicle for the tar is a water-miscible buffered cream.

[1] Kolpix A (low tar-acid content) and Kolpix D (high tar-acid content) Cremes in an acid mantle base (Dome Chemicals, Inc., New York, N. Y.).

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(4) Combes, F. C., *Ind. Med.* (July, 1944).
(5) Jaffrey, W. R., *Can. Med. Assoc. J.*, **18**, 680(1929).
(6) Downing, J. G., and Bauer, C. W., *Arch. Dermatol. and Syphilol.*, **57**, 985(1948).

Progress in Medicine

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Crystalline Trypsin in Blood Coagulation

On the basis of their studies of the effects of lyophilized crystalline trypsin on blood coagulation in rabbits and clinical reports by others, three New York physicians state: "There is insufficient evidence to justify the use of trypsin for therapeutic purposes in man." They claim the use of trypsin intravenously in sufficiently large doses to produce measurable effects on the clotting mechanism is associated, in rabbits, with grave dangers, especially of intravascular clotting, hemorrhages into the tissues, and focal necrosis in the musculature of the heart and diaphragm. Minute doses cannot be shown to have any demonstrable effect on the blood clotting mechanism. Neither large nor small amounts of trypsin intravenously have any therapeutic effect whatever on artificially induced intravascular thrombi. The physicians conclude that trypsin should not be distributed for general clinical use at this time.

[Taylor, A., Overman, R. S., and Wright, I. S., *J. Am. Med. Assoc.*, **155**, 347 (May 22, 1954).]

Diet, Digitalis and Diuretics

The treatment of heart failure, as stated by a Buffalo physician, should follow the 3D formula: Rest + 3D + MR −M = Compensation, in which 3D represents Diet, Digitalis, and Diuretics; MR refers to mechanical removal of fluid, and M to mental upset. "Manifestations of congestive failure result from an accumulation of fluid in the tissue and tissue spaces," the physician states, "and it is merely a question of the amount of fluid that determines the variable clinical signs and resultant symptoms." The 3D's in the program seek to prevent the accumulation and to encourage excretion, he explains. As the fluid in the tissue is due to retention of salt and water, means have been devised to decrease either or both. The dietary approach is one of low sodium (1–4 Gm.), fluids as desired, supplemental vitamins, calorie intake 1200–1800.

[Levy, Dexter S., *New York State J. Med.*, **54**, 651 (1954).]

Malt Soup Extract in Geriatric Constipation

Studies carried out by two Brookline, Mass., physicians show that Malt Soup Extract (neutral, water-soluble mixture containing maltose 58%, dextrins 12%, potassium 0.9%, sodium 0.1%, grain extractives, and water) provides an efficient bowel content modifier (stool softener) for correction of constipation in elderly patients.

[*J.-Lancet* (Minneapolis), **73**, 414 (Oct., 1953).]

Intranasal Corticotropin Therapy

A majority of a group of 60 patients with gouty arthritis, rheumatoid arthritis, bronchial asthma, allergic rhinitis, and other conditions, responded favorably to intranasal dosage with finely powdered, purified corticotropin (ACTH), in a clinical study by three Canadian physicians. The powder was administered by insufflation or snuffing of about 40 units in one daily dose. It is stated that intranasal ACTH powder should have the following properties: low molecular weight; high purification; freedom from material that might interfere with absorption; small particle size to enhance adhering to nasal mucosa.

[McKendry, J. B. R., Schwarz, H., and Hall, M., *Can. Med. Assoc. J.*, **70**, 244(1954).]

Mantomide in Intestinal Amebiasis

Mantomide, N-(2,4-dichlorobenzyl)-N-(2-hydroxyethyl)-dichloracetamide, was found to be more highly active in considerably smaller doses against *Endamoeba histolytica* than certain broad-spectrum antibiotics and other commonly used drugs in chronic intestinal amebiasis, according to two recent reports by four physicians. In one study (1), twenty-four patients with chronic amebiasis were treated with Mantomide and kept under observation for a minimum of 6 weeks. The dose was calculated according to the patient's age: to those less than 5 years, 250 mg. was given 3 times daily for 8 days; 500 mg. was given 3 times daily for 10 days to patients between 5 and 10 years; and 750 mg. to 1.0 Gm. was given 3 times a day for 10 and 8 days, respectively, to those over 10 years. The parasites were eliminated in all 24 cases and smear tests were found negative 6 to 28 weeks later. Cysts reappeared in one patient during the seventh week of post-treatment observation, Drs. Loughlin and Mullin note, suggesting reinfection or drug failure as the possible cause. No evidence of toxicity or intolerance was noted in any patient.

In the second report (2) Drs. Dennis and Berberian note that Mantomide has been "found to be amebacidal in concentrations as low as 12.5 mcg. per cc., when tested *in vitro* against *E. histolytica*. The 50% effective dose in hamsters infected with *E. criceti* was 13.8 mg./Kg., compared to 18.75 mg./Kg. with oxytetracycline and 22.9 mg./Kg. with chlortetracycline. Mantomide was considerably more effective than carbarsone and diiodohydroxyquinoline, for which the effective doses were 45.0 and 235.0 mg./Kg., respectively." Treatment of 3 clinical cases with 0.25 Gm. three to four times daily for 7 to 10 days was effective in each case in 2 to 5 days. In addition to producing prompt responses, Mantomide caused no reactions.

[(1) Loughlin, E. H., and Mullin, W. G., *Antibiotics & Chemotherapy*, **4**, 570 (May 1954); (2) Dennis, E. W., and Berberian, D. A., *ibid.*, **4**, 554 (May, 1954).]

FDA CRIMINAL PROSECUTION ACTIONS TERMINATED IN MAY

Over-The-Counter Sales of Prescription Drugs

Chicago, Ill.—Sold Dormison and hormones without physicians' prescriptions. Firm fined $100; individual fined $300 and court costs of $40.80.

Hammond, Ind.—Sold amphetamine without physicians' prescriptions. Fined $2,000 and court costs of $37.20, given a one-year suspended jail sentence, and placed on probation for two years.

Hazard, Ky.—Sold paraldehyde, Banthine, and penicillin without physicians' prescriptions. Two defendants: one fined $200 and the other fined $100 and court costs of $35.

Winchester, Ky.—Sold amphetamine, barbiturates, and Banthine without physicians' prescriptions. Two defendants: one fined $400 and court costs of $17.50 and the other fined $100 and court costs of $17.50.

Winchester, Ky.—Sold amphetamine, hormones, penicillin, and thyroid without physicians' prescriptions. Fined $400 and court costs of $35.

Winchester, Ky.—Sold Banthine, hormones, penicillin, and thyroid without physicians' prescriptions. Two defendants: one fined $400 and court costs of $17.50 and the other fined $100 and court costs of $17.50.

Joplin, Mo.—Sold amphetamine, barbiturates, hormones, sulfonamides, and thyroid without physicians' prescriptions. Sentence suspended.

St. Louis, Mo.—Sold amphetamine and barbiturates without physicians' prescriptions. Fined $500 and court costs of $35.

Omaha, Neb.—Refilled prescriptions for amphetamine and barbiturates without physicians' authorizations. Firm fined $400; individual fined $100 and court costs of $39.40.

Paterson, N. J.—Sold amphetamine without physicians' prescriptions. Two defendants each fined $100.

Lawton, Okla.—Sold amphetamine, barbiturates, and hormones without physicians' prescriptions. Fined $105.

Plainview, Tex.—Sold hormones and methantheline bromide without physicians' prescriptions. Fined $1,000, given a three-month suspended jail sentence, and placed on probation for 18 months.

Plainview, Tex.—Sold hormones and methantheline bromide without physicians' prescriptions. Two defendants each fined $500, given a three-month suspended jail sentence, and placed on probation for 18 months.

Seattle, Wash.—Sold amphetamine, barbiturates, sulfonamides, and chloral hydrate without physicians' prescriptions. Fined $2,000 and given a twelve-month jail sentence.

Misbranded Drugs

Bio-Ramo Drug Co., Inc., Baltimore, Md.—Crude liver injection was deficient in vitamin B_{12}. Fined $750 and court costs of $113.84.

Brewer & Co., Inc., Worcester, Mass.—Phenobarbital sodium had been substituted for phenobarbital; Pyraphen tablets were deficient in aminophyllin; Luasmin capsules contained excess phenobarbital sodium. Firm fined $1,200; individual fined $300.

Consultants' Laboratories and Lympheen Co., Millington, N. J.—Lymphex contained false and misleading therapeutic claims for the treatment of deep-seated infections, arthritis, bursitis, sinusitis, rheumatic fever, inflammatory rheumatism, sciatica, and many virus infections. Tracel contained false and misleading therapeutic claims for the treatment of allergies and asthma and the prevention of diabetes; asserting, furthermore, that all of the minerals contained in the drug were trace elements and are required in human nutrition; that a normal diet would not supply adequate vitamins, minerals, and trace elements; and that the human system cannot make use of vitamins without minerals. Fined $500 and placed on probation for one year.

Calvital Co., Inc., Mt. Vernon, N. Y.—Calvital capsules were deficient in the declared amount of vitamin D. Firm fined $1; individual fined $250; both fines were remitted.

FOURTH U. S. P. XIV SUPPLEMENT PUBLISHED

The fourth and final Supplement to U. S. P. XIV has been circulated to all registered holders of the U. S. P. XIV. and becomes effective July 15 1954.

Including all interim revisions to the Pharmacopeia that have been issued since publication of the Third Supplement in 1951, the Fourth Supplement also provides new monographs on Purified Water and on preparations containing Vitamin B_{12} with Intrinsic Factor Concentrate.

Purified Water U. S. P. may be used wherever Distilled Water is called for in the Pharmacopeia, and it is contemplated that it will replace the latter in U. S. P. XV, scheduled for publication in 1955. Purified Water U. S. P. may be prepared by distillation or by demineralization, but otherwise meets the standards of Distilled Water U. S. P., and in addition meets the requirements of a test for oxidizable substances.

The monographs on Vitamin B_{12} with Intrinsic Factor Concentrate, covering the two dosage forms, Capsules and Tablets, put into effect the requirements that have been established by the U. S. P. Anti-anemia Preparations Advisory Board in considering requests for approval of anti-anemia preparations during the past year. No recognition is being given to any form of intrinsic factor lacking vitamin B_{12} activity, since this is not regarded as being of therapeutic significance.

The Vitamin B_{12} Activity Assay, which first appeared in the Third U. S. P. XIV Supplement, has been under continuous study and is revised in the new Supplement. Briefly, the revision provides for shortening the assay period from 3 days to overnight, by means of turbidimetric measurement of the amount of growth of the test organism in 16 to 18 hours instead of the former method of titrating the amount of lactic acid produced over the longer period.

Lotion Vehicle

• • • • • • • • • • • • • *from page 421*

of phenol and resorcinol lowers the viscosity of both lotions.

Aluminum acetate solution completely and immediately broke lotion *A*. Its *compatibility* with lotion *B* demonstrated the value of combining the nonionic emulsifiers with the sodium lauryl sulfate.

In the case of lotion *A*, the samples which were agitated daily maintained an appearance identical to the analogous samples of lotion *B*. Zinc oxide and coal tar solution, however, produced a superior looking preparation if they were shaken daily. In actual prescription practice, daily agitation can be expected to occur. This agitation can be assumed, therefore, to maintain the satisfactory appearance of mixtures containing lotion *B*. It should be remarked that, although shown to be somewhat less stable in the tests, lotion *B* has a wider range of compatibility.

Authors' Summary

Two lotion vehicles were formulated for extemporaneous compounding.

The products are o/w emulsions conforming to generally accepted attributes for dermatologic application.

The vehicles are stable on the shelf for over two months. They are stable and pourable at temperatures between 9°C. and 33° C. Their *p*H lies between 7.0 and 7.5.

Tests have shown the formulas to be compatible with commonly prescribed medicaments.

The formulas are offered as aids to expedite the dispensing of dermatologic medicaments.

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PRESCRIPTION PRODUCTS UNDER FAIR TRADE

As a landmark in fair trade laws, a decision in the United States District Court in New Orleans, entered June 14, 1954, is of great significance. For the first time, it was decided that those pharmaceutical products which must be sold on a physician's prescription are covered by present fair trade laws.

This suit was brought by Hoffmann-La Roche Inc. against the Schwegmann Brothers' Giant Super Markets in New Orleans to enforce the fair trade prices of drugs, available only on a physician's prescription, marketed by Hoffmann-La Roche, Inc.

The meaning of this important decision is that fair trade laws are not restricted to drugs sold over the counter without a prescription. It was adjudicated that a retailer selling a drug available only on a physician's prescription cannot avoid liability under Fair Trade laws by removing the trademark or label from the container or the product. Furthermore, in determining whether the trade name of the manufacturer is utilized in selling a fair-traded product which is available on a physician's prescription only, it is not essential for the customer to be aware of the name of the drug in his prescription. The good will established in prescription drug trademarks, names, and brands is "inseparably bound" with the prescription written by the physcian.

This decision extends the protection of the fair trade act in Louisiana against unfair competition whether the trademarked and fair-traded drug is supplied with or without a prescription.

Hormone Creams and Facial Skin

In a clinical study performed by a physician in an attempt to demonstrate the observable effects of estrogenic hormone creams on the facial skin of a group of women, the only clinical changes observed from both subjective and objective standpoints consisted of a lessened degree of dryness in facial skin that was previously of an asteatotic or dry type. No appreciable difference was visually observed in the side treated with an estrogenic hormone cream as compared with the side treated with either the identical base without hormones or a commercial night cream having a very similar composition to the hormone cream. This study demonstrated that noticeable improvement in the appearance of the skin can be obtained through regular use of an emollient cream on women with dry skins. This study did not demonstrate that the addition of hormones to such emollient bases increased this improvement to any discernible extent.

[Behrman, Howard T., *J. Am. Med. Assoc.*, **155**, 119 (May 8, 1954).]

THIS ADVERTISEMENT is part of a continuing Merck program to build increased physician support for all brands of ethical vitamin specialties. The campaign is running in leading medical journals.

"...and be sure he takes his VITAMINS!"

In contagious diseases, such as measles, fever increases vitamin requirements; accompanying anorexia further interferes with normal nutrition. A balanced vitamin preparation is a dependable way to counter such developments.

MERCK & CO., INC., RAHWAY, N. J.–as a pioneer manufacturer of Vitamins–serves the Medical Profession through the Pharmaceutical Industry

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Nitrofurans

• • • • • • • • • • • • • • *from page 422*

screening program and should shortly begin clinical trial in this field.

Throughout all of this period our desire had been to find a nitrofuran for systemic administration and this factor was considered for each compound developed. However, until 1950, all had proven either so insoluble as to be impractical or were metabolized so rapidly in the body as to seriously limit any systemic value. At last, one promising compound emerged from extensive bacteriologic, biologic, and pharmacologic investigation. Following oral administration, this drug was rapidly and almost completely absorbed. Following absorption, the kidney excreted from 40 to 50 per cent of the drug unchanged into the urine. The urinary levels that could be achieved were well above minimal bactericidal concentrations. Clinical trials with this compound soon showed its value in treating infections of the urinary tract and Furadantin, nitrofurfurylidene aminohydantoin, was introduced in March of 1953. Subsequent clinical experience has confirmed its value and lack of associated toxicity. In June of 1953 it was accepted as nitrofurantoin for inclusion in N. N. R.

The mode of antibacterial activity of the nitrofurans as a group has been demonstrated to differ completely from that of other agents. In contrast to the antibiotics, which apparently depress cell reproduction, and the sulfonamides, which compete with or block assimilation of *para*-aminobenzoic acid, the nitrofurans act by enzymatic blocking in the carbohydrate metabolism. Specifically, this occurs in the degradation of glucose in the Krebs cycle by inactivation of coenzyme *A*, essential in the pyruvate-to-citrate step.

At the present time additional nitrofurans are being used successfully in the veterinary field and others are in the final stages of screening and may shortly be available for human trial. The difficulties in satisfying stringent requirements for specific action, biologic fate, and toxicologic safety is by necessity an expensive and time-consuming process. This can be evidenced by the fact, that of over 300 nitrofurans synthesized, only three have achieved clinical use to date.

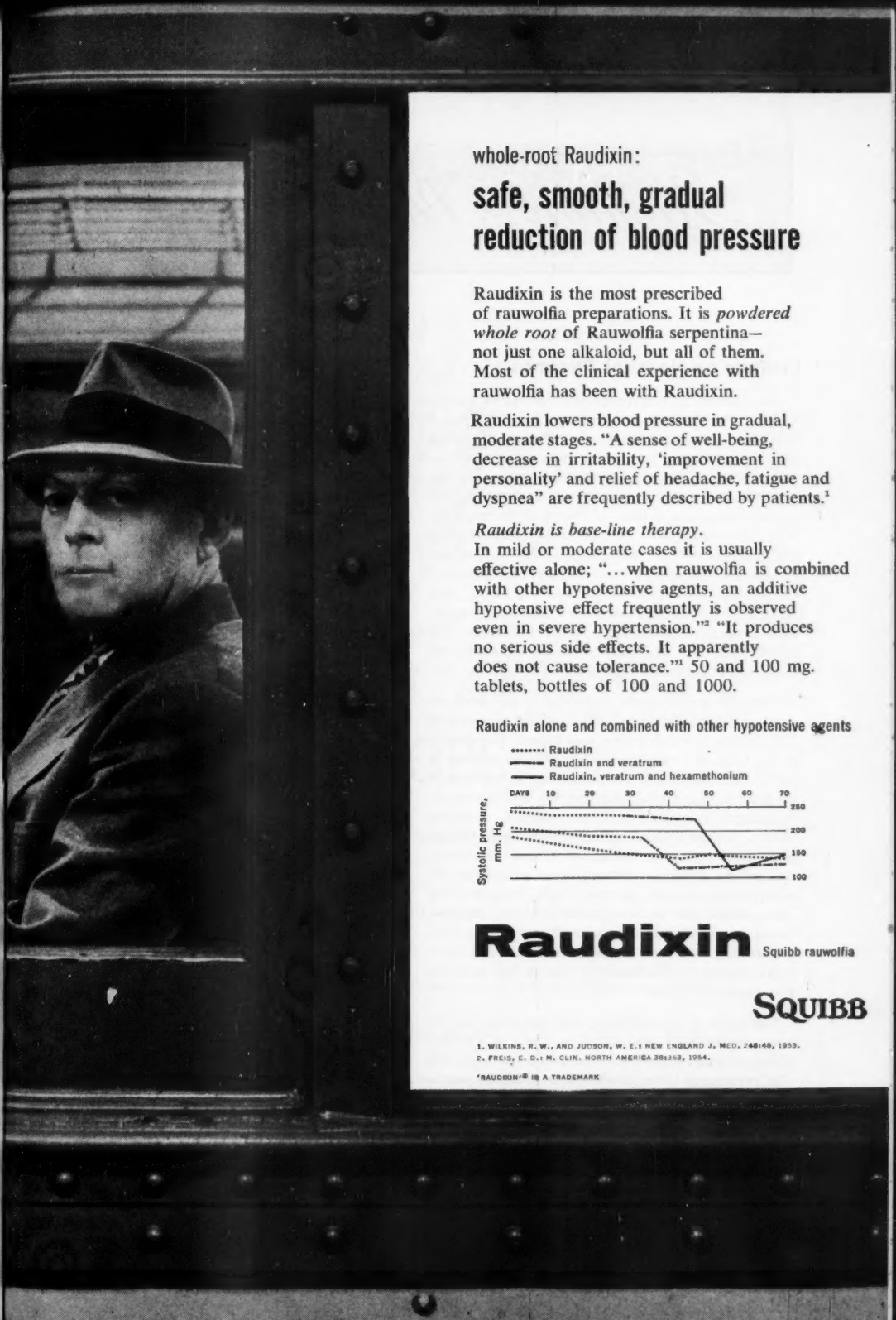
In closing, let me stress our firm belief that we—scientists, physicians and pharmacists in pharmaceutical industry, dispensing pharmacists, and practicing physicians, are all members of one team—a team united in the common cause of fighting disease and so providing longer life and greater happiness for our fellow men.

Diamox as Diuretic in Patients with Severe Congestive Heart Failure

Twenty-six hospitalized patients with severe chronic congestive heart failure were treated with Diamox (acetazoleamide), which produces diuresis by carbonic anhydrase inhibition. The oral dosages administered by the three reporting physicians ranged from 250 mg. of Diamox every 24 hours for 3 days to 500 mg. every 8 hours for 12 days. Half the group failed to lose weight and the remainder with one exception lost only 2 to 6 pounds over an average of 7 days. One patient lost 11 pounds in 9 days and became edema free. Least favorable response was observed in patients with azotemia. Many patients later responded more satisfactorily to combined therapy with mercurial diuretics, aminophylline, and ammonium chloride. The physicians conclude that: "Diamox administered orally to hospitalized patients with severe congestive heart failure was of little or no value as a diuretic." *New England J. Med.*, **250,** 800 (May 13, 1954).]

Triethylene Melamine (TEM) Therapy in Malignant Diseases

The clinical use of TEM in chronic lymphocytic leukemia, malignant lymphomas, chronic granulocytic leukemia, polycythemia vera, adenocarcinoma of ovary, lymphoepithelioma of nasopharynx, and undifferentiated carcinoma is discussed briefly by Dr. R. Wayne Rundles. Stressing the critical nature, because of the small margin of safety, the physician discusses the dosage in detail. TEM is usually given orally for prolonged use although 2–3 mg. daily can be given intravenously. There is no average dose and the dose must be determined for each patient. The maximal single oral dose is 2.5–5.0. mg. TEM is destroyed by acid and by contact with food; therefore, the tablets are given to fasting patients one hour before breakfast along with 2 Gm. or more of sodium bicarbonate. The proper dose for the patient is ascertained by observing the effect on appetite, the daily white cell count, size of tumors, fever, etc. The following oral dosage schedule is recommended: day 1: 2.5 mg.; day 2: 2.5 mg.; day 3: 2.5 mg. if appetite and white blood count (WBC) have not been affected; days 4–7: *do not administer TEM;* day 8 on: give further initial or maintenance doses as indicated by patient's sensitivity to TEM—(A) maximal sensitivity (anorexia and/or fall in WBC after two 2.5-mg. doses): 0.5–1 mg. at 7–14 day intervals; (B) average sensitivity (reaction noted during days 3-8): 1-2.5 mg. every 5-10 days; (C) low sensitivity (no effect from three 2.5-mg. doses): 2.5-5 mg. every 2-5 days. Therapy should be suspended while leukocyte count is falling. The full effect of doses given may not be evident for 7-10 days. Any dose causing severe anorexia or vomiting is excessive. [*GP*, **9,** 75 (May, 1954).]



whole-root Raudixin:

safe, smooth, gradual reduction of blood pressure

Raudixin is the most prescribed of rauwolfia preparations. It is *powdered whole root* of Rauwolfia serpentina—not just one alkaloid, but all of them. Most of the clinical experience with rauwolfia has been with Raudixin.

Raudixin lowers blood pressure in gradual, moderate stages. "A sense of well-being, decrease in irritability, 'improvement in personality' and relief of headache, fatigue and dyspnea" are frequently described by patients.[1]

Raudixin is base-line therapy.
In mild or moderate cases it is usually effective alone; "...when rauwolfia is combined with other hypotensive agents, an additive hypotensive effect frequently is observed even in severe hypertension."[2] "It produces no serious side effects. It apparently does not cause tolerance."[1] 50 and 100 mg. tablets, bottles of 100 and 1000.

Raudixin alone and combined with other hypotensive agents

Raudixin Squibb rauwolfia

SQUIBB

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'RAUDIXIN'® IS A TRADEMARK

Hospital Pharmacy

Institute on Hospital Pharmacy

Facilities at the University of Connecticut, Storrs, Conn., offered ideal surroundings for the Annual Institute on Hospital Pharmacy. This was the tenth meeting of this type which was sponsored by the American Hospital Association in cooperation with the AMERICAN PHARMACEUTICAL ASSOCIATION and the American Society of Hospital Pharmacists. Also contributing to the success of this Institute were the members of the Connecticut Society of Hospital Pharmacists headed by Dave Burack, chief pharmacist at Mt. Sinai Hospital in Hartford, Conn., and Ruth Pully, chief pharmacist at Charlotte Hungerford Hospital, Torrington, Conn.; and Dean Hal Hewitt and Dr. Don Skauen of the University of Connecticut School of Pharmacy.

Hospital pharmacists attending came from 34 states, Canada, and the Canal Zone and represented institutions of varying sizes and types. Conducted in the form of a refresher course, the group showed much enthusiasm and interest in current trends in medical care programs, therapeutics, and recent developments in hospital pharmacy practice. Lectures were presented by leading men in the fields of hospital administration, therapeutics, and pharmacy. Among the subjects covered were pharmacy administration, records, policies, bulk compounding, educational services, equipment, controls, radioisotopes, agents used in the management of leukemia, antibiotics, hormones, electrolytes, toxicology, anesthetic agents, sterilization procedures, and new and investigational drugs.

One phase of the institute programs which has become increasingly important is the "Workshop" which offers an opportunity for group participation. The registrants were divided into small discussion groups with each group assigned a specific subject. With a leader, the group was given an opportunity to discuss the assigned subject and to formulate some type of conclusions regarding current practices relating to the subject. The results of the ten workshops were put before the entire group attending the institute in the form of a panel discussion with Dr. Robert R. Cadmus, administrator of the North Carolina Memorial Hospital, Chapel Hill, as moderator. Subjects given particular attention by the group during the panel included educational trends in pharmacy and the need for specialized training in hospital pharmacy; pricing policies; pharmacy internships; and professional relations.

A dinner on Friday night with the awarding of certificates to 163 registrants concluded the week. This marked completion of the largest institute—that is, with the largest attendance—ever held.

Hospital Trends

Major trends in the hospital field are reported in the annual "Administrators Guide Issue" of *Hospitals* (June, 1954), published by the American Hospital Association. Here, statistical guides covering all phases of hospital services give a picture of current practices affecting hospital care. Eight-year trends show that the average daily census in hospitals increased from 15,674,602 in 1946 to 20,183,827 in 1953. A total of 6,978 hospitals are included in the 1953 A.H.A. list, excluding those operated by the federal government.

Pharmacy Service

Of the 6,003 hospitals reporting Specified Facilities and Services covering 1953, 3,245 have a Pharmacy. This is an increase of approximately 200 over last year. According to bed capacity, these are distributed as follows:

	Hospitals Reporting	*Pharmacy*
Under 25 beds	755	138
25–49	1,350	328
50–99	1,360	578
100–199	1,170	901
200–299	489	463
300–499	374	356
500 and over	505	481
	6,003	3,245

Other significant statistics relating to operation of the Pharmacy in hospitals are as follows:

Hospitals Employing Full-time Licensed Pharmacists—2,097 (5,907 Reporting)

Hospitals Having a Pharmacy Committee—1,169 (3,534 Reporting)

Hospitals Having a Formulary Listing Available Drugs—2,537 (4,370 Reporting)

Hospitals Manufacturing Parenteral Solutions—247 (5,907 Reporting)

THE **DROP** THAT MAKES SALES **RISE!**

NEW! *Tetracyn*

BRAND OF TETRACYCLINE

PEDIATRIC DROPS

(BANANA FLAVORED)

With this newest dosage form of the newest basic broad-spectrum antibiotic you can expect an entirely *NEW* RX MARKET FOR TETRACYN!

Stock up right now and watch this DROP send profits UP!

SUPPLIED: Tetracyn Pediatric Drops *(banana flavored) (amphoteric) 1.0 Gm. in 10 cc. bottles, with special dropper calibrated at 25 mg. and 50 mg.*

ALSO AVAILABLE:

Tetracyn Tablets *(hydrochloride) (sugar coated) 250 mg., bottles of 16 and 100. 50 mg. and 100 mg., bottles of 25 and 100.*

Tetracyn Capsules *(hydrochloride) 250 mg., bottles of 16 and 100. 50 mg. and 100 mg., bottles of 25 and 100.*

Tetracyn Oral Suspension *(chocolate flavored) 1.5 Gm. in 1 fl. oz. silicone-treated, "drain-free" bottles.*

Tetracyn Intravenous *(hydrochloride) Vials of 250 mg. and 500 mg.*

Tetracyn Ointment *(hydrochloride) (topical) 30 mg./gram, in ½ oz. and 1 oz. tubes.*

Tetracyn Ophthalmic Ointment *(hydrochloride) 5 mg./gram, in ⅛ oz. tubes.*

BASIC ETHICAL PHARMACEUTICALS ℞ PFIZER 536 LAKE SHORE DRIVE, CHICAGO 11, ILLINOIS

War Gas Antidote Used in Nickel Poisoning

The war gas antidote, dimercaprol, better known as BAL, short for British Anti-Lewisite, is now credited with saving the lives of several persons poisoned by nickel carbonyl and helping toward the recovery of many others.

This appears in what is believed the first report of the use of BAL in nickel poisoning. The report is made by Drs. F. William Sunderman and John F. Kincaid of Jefferson Medical College and the research division of Rohm and Haas Co., Philadelphia, Pa., in the *Journal of the American Medical Association*.

The war gas antidote was given to 32 of the 100 men exposed to nickel carbonyl during repair of a reactor in an oxo plant of one of the large oil refineries in Texas. Of the 32 given BAL, 31 survived.

Army ROTC Units to Convert to Military Science Course

Units of the Army Reserve Officers Training Corps at 53 additional colleges and universities will convert to the General Military Science Course, in place of branch training, beginning with the 1954–1955 academic year. Of 241 institutions conducting the Senior Army ROTC program, 162 have now converted to General Military Science since the new course was introduced in 1952.

The General Military Science course, which stresses leadership training and development of general knowledge and characteristics required of any Army officer, teaches subjects common to all combat arms, technical and administrative services of the army, in place of branch specialization. Under new Department of the Army policy, General Military Science students are given tentative branch assignments at the beginning of the senior year.

Students who have received Selective Service deferment and who are called to active duty upon graduation from college, will be assigned to the various branches according to their capabilities, individual preferences and the needs of the Army, at the time of their entry on active duty. Officers, commissioned through the Army ROTC are given specialized training in their assigned branch at an appropriate service school immediately upon commencement of their active duty.

Airborne Radar Division Formed

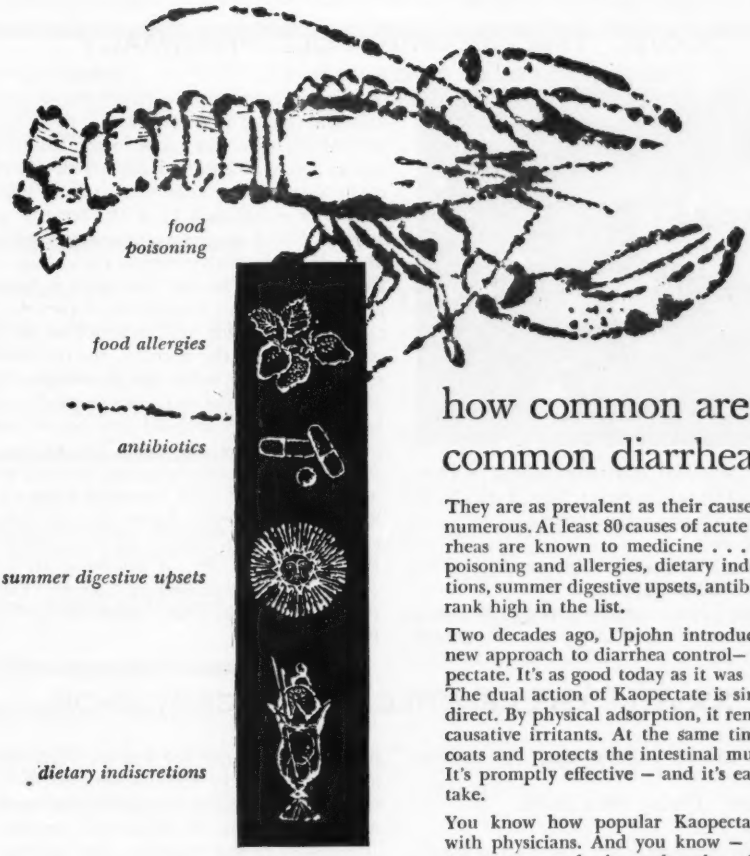
The first USAF Airborne Early Warning and Control Division was activated on May 1. This seaward extension of the warning system will augment the ship to shore, radar and Ground Observer Corps system which is now operating to provide warning of a hostile air attack.

AEW&C aircraft (which are specially modified versions of the Lockheed Super-Constellations) will provide Air Defense Command with additional early warning of approaching enemy forces and at the same time allow increased warning time to the populated areas in coastal cities. It will also be possible to guide our fighters to intercept unidentified aircraft approaching our coastal boundaries.

Once the division is fully operational it will be composed of squadrons strategically located on both the East and West coasts, and operation of each area covered will be a twenty-four-hour, seven-day a week responsibility.

New Retirement Policy for Reservists

Reserve officers who have completed twenty or more years of active Federal service, at least ten years of which are commissioned, may be retired voluntarily upon application. In addition, reserve officers who are qualified for retirement by virtue of twenty years' service and who have attained the maximum ages of 55 for colonels and 53 for lieutenant colonels and below will be required to retire upon 90 days' notice to the individual. Reserve colonels with over thirty years of active Federal service and lieutenant colonels and below with more than 28 years of active Federal service also will be required to retire, even though they may not have attained the maximum age limits.



how common are common diarrheas?

They are as prevalent as their causes are numerous. At least 80 causes of acute diarrheas are known to medicine . . . food poisoning and allergies, dietary indiscretions, summer digestive upsets, antibiotics rank high in the list.

Two decades ago, Upjohn introduced a new approach to diarrhea control— Kaopectate. It's as good today as it was then. The dual action of Kaopectate is simple, direct. By physical adsorption, it removes causative irritants. At the same time, it coats and protects the intestinal mucosa. It's promptly effective — and it's easy to take.

You know how popular Kaopectate is with physicians. And you know — from your year-round sales — that the call for Kaopectate is *almost* as common as common diarrheas.

Kaopectate

TRADEMARK REG. U. S. PAT. OFF.

first thought in the control of common diarrheas

each fluidounce contains: **Kaolin ..... 90 grs.**
Pectin ..... 2 grs.

In an aromatized and carminative vehicle

Upjohn THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

EARLY AMERICAN PHARMACIES

BY GEORGE B. GRIFFENHAGEN*

XXVII. THE COLUMBIA OLD PHARMACY

Address: Columbia University College of Pharmacy, 113–119 West 68th Street, New York, N. Y.
Hours Open: During school hours.
Admission: Free.
Floor Space: 380 square feet (room restoration).
Owner: Columbia University.
History: One of the features of the 1929 centennial observation of the College was an exhibit showing the contrasts between the drugstore of 1829 and that of a century later. After removing the exhibit to a rear room in the basement, the restoration was enlarged to include the fixtures of the old pharmacy at 86 Market Street which was originally established by a Dr. Scruton in 1832, and was placed on permanent exhibition in a wing of the dispensing laboratory of the College in 1944.
Description: The old pharmacy is housed adjacent to a modern prescription department, separated by a partition and curtained openings. On passing through the opening, the old ornate prescription counter with its ground-glass panels, and three sections of wall cases stocked with glass-labeled shelf-ware and old-time patent medicines immediately meet the eye. The wooden stock drawers below the shelving contain bulk stocks of herbs, roots, and other botanical items.
References: *Merck's Report*, 38, 100, July, 1929. *Columbia Alumni News*, 35, 5, April, 1944. Ballard, Charles W., *A History of the College of Pharmacy, Columbia University*, Columbia University Press, New York, 1954; Appendix I, "The Old Pharmacy."

XXVIII. THE LEDERLE APOTHECARY SHOP

Address: Lederle Laboratories, Pearl River, N. Y.
Hours Open: During office hours.
Admission: Free.
Floor Space: 300 square feet (room restoration).
Owner: Lederle Laboratories.
History: In an attempt to emphasize the contrast between pharmacies of the 19th century and those of today, two restorations were constructed in the entrance lobby in Lederle's Pearl River office building. On the left is a replica of an old apothecary shop of the early 19th century, while on the right is a modern pharmacy. The exterior of the apothecary shop was designed as a composite of several shops in Williamsburg, Va., while the interior was arranged according to various similar restorations of the period. The exhibit was completed in the spring, and was dedicated on June 14, 1954.
Description: The exterior of the shop follows the colonial pattern, having bow windows on either side of the entrance and a stone block step with iron railings. The roof consists of thick, hand-split shingles, and the street is paved with brick. A large mural on the back wall provides added atmosphere to the exterior. The interior of the restoration is fitted with prescription counter and built-in wall cases, stocked with a variety of glass-labeled bottles and apothecary jars.

* Associate Curator, Division of Medicine and Public Health, Smithsonian Institution, Washington, D. C., and Consultant to the A.Ph.A. Museum. The 27th and 28th of a series of monographs describing apothecary shop restorations on exhibition in the United States.

MASSENGILL PRESCRIPTION SPECIALTIES

THESE SPECIALTIES HAVE WIDE ACCEPTANCE. BE SURE TO KEEP ADEQUATE STOCKS.

ADRENOSEM

The systemic hemostat 1 cc. 5 mg. Ampuls

1 mg. and 2.5 mg. Tablets–bottles of 50

BRONIACIN

Bromide therapy without bromism.

Tablets: bottles of 100, 1000

Elixir: gallon and pint

SALCEDROX®

Massive salicylate dosage with minimum gastric irritation.

Tablets, bottles of 100 and 1000

MASSENGILL® POWDER

The standard nonirritating acid douche.

Bottles: 3 oz., 6 oz., 1 lb., 5 lb.

SEMHYTEN®

Coordinated therapy for hypertension.

Capsules: Bottles of 100, 500, 1000

to send prescriptions to your pharmacy

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ADVERTISING IN THE LEADING MEDICAL JOURNALS

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Weekly mailings to general practitioners and specialists.

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OBEDRIN®

Obesity Control Tablets and the 60-10-70 Diet

Bottles of 100, 500, 1000 tablets

AMINODROX®

Full therapeutic dosage of oral aminophylline.

Tablets Aminodrox and Tablets Aminodrox-Forte, plain or with 1/4 gr. Phenobarbital

Bottles of 100 and 1000

LIVITAMIN®

The iron reconstructive tonic

Liquid: gallons, pints, 8-oz.

Capsules: Bottles of 100, 500, 1000

STUDENT BRANCHES

At its annual dinner dance, held at the Hotel Utah Starlight Gardens on May 14, the following new officers of the **University of Utah Branch** were installed: Glenn T. Farnworth, president; William Stenberg, president-elect; Melvin Freebairn, vice-president; Mary Joan Walker, secretary; Daryle Garfield, treasurer; Sandra Sheppard, historian; Dalia Martin, editor-elect of *Pharmic Ute;* Cliff Barron, business manager of *Pharmic Ute;* Chet Campanella, senior representative; Edgar Filippetti, junior representative.

Approximately 30 attended the meeting of the University of Utah Branch on May 26. The main event of the evening was the showing of slides taken by members of the Junior and Senior classes on their recent visits to the plants of the Parke, Davis Company and the Eli Lilly Company.

The following new officers have been elected at the **University of California Branch:** Frank Dunn, president; William Gellen, vice-president; Donna Hoffman, secretary; Sue Ott, treasurer.

Students Warren E. Kobelin and Sami S. Ahaan were principal speakers at the **Montana State University Branch** meeting on May 5. Mr. Ahaan spoke on life in Pakistan while Mr. Kobelin gave a description of work and study at the Army Pharmacy School.

New officers of the Branch are: Max A. Makich, president; Donald Enebo, vice-president; LaQuita Lahn, secretary; Lola Anderson, treasurer.

Elections were held by the **Ferris Institute Branch** at a special meeting on June 9. Howard F. Smith was elected president; Floyd Rademacher, vice-president; Patricia A. Cronin, secretary; and Anthony J. Mondry, treasurer.

Robert Pearce was elected president of the **University of Wyoming Branch** at a meeting on May 20. Other officers are Vice-President, Ruth DeLand; Secretary, Mieco Nakamura; Treasurer, Edwin Schroeder.

On May 18, at a meeting held in conjunction with the **Chicago Branch,** the following officers of the **University of Illinois Branch** were installed: Raymond Broderick, president; Karl Strickland, vice-president; Vernita Williams, secretary-treasurer.

Mortar and Pestle, the **University of Florida Branch,** met on May 3 to hear David D. Stiles, director of market development of Abbott Laboratories, who discussed trends in prescriptions and compared present day prescriptions to the analysis made by Dr. Edward C. Elliot, former president of Purdue University, and his associates in "The Prescription Study of the Pharmaceutical Survey" conducted by the American Council on Education.

The **University of Kansas Branch** reports the following change of officers: Ronald W. Gaugh, president; Charles A. Powell, vice-president; Kay Lannette Lowis, secretary; Martin J. Swisher, treasurer.

At the **University of Kansas City Branch,** Hugh Snell was elected president; Roger Thompson, vice-president; Arlene Nelson, secretary; Katherine Kratofil, treasurer; Charles Cossins and Jerry Bickley, Student Council representatives.

Outgoing president Marvin Ganek reports his successor to be Richard Doerrer at the **Rutgers University Branch.** Otto Wolke is the new vice-president; Murray Weinstock has been elected treasurer, and Joan Savage, secretary.

Director Cramer of the State V. D. Prevention Bureau was guest speaker at the **Southwestern State College Branch** meeting held in Weatherford, Okla. This was a joint meeting with Beta Beta Beta Biological Society, and Branch President Charles Batson officiated.

On May 20, the **University of Arizona Branch** gave a farewell banquet to the members of the graduating class. At the banquet, Dolores Strittmatter was given the Pennington Drug Award; John Hayword and Neil Maxwell received the Merck Award, and Bill Brincko and Richard Glassock, Branch president, were joint recipients of the Kappa Psi Award.

Presentation of awards was made at the **University of Colorado Branch** meeting on May 20. Dean Charles F. Poe introduced Dr. Fred Drommond, who presented awards to outstanding seniors. For the first time in the history of the College, the Lehn & Fink Gold Medal went to a woman, Margie C. Gaasch. Other awards presented are as follows: Merck Index Awards to Dorothy Dugas and John Herath; Merck Manual Awards to Don Vecchio and Aaron Loose; Modern Drug Encyclopedia Award to Woodley Hebert; the Rx Club Award to Jo Berry.

New officers of the Branch are: Harlan Nietfeld, president; Dean Hopkins, vice-president; Lou Etta Hale, secretary; Albertina Almgren, treasurer; Bertleigh Cox and Dwayne Ogzewalla, sponsors.

Newly-elected officers for the coming year have been announced by the **Washington State College Branch** as follows: President, Jack Dean; Vice-President, Dudley Phibbs; Secretary, Patricia Pugh.

At the last regular meeting of the **Ferris Institute Branch,** the following officers were elected: Howard Smith, president; Floyd Rademacher, vice-president; Anthony Mondry, treasurer; and Patricia Cronin, secretary. Richard Bailey was selected to attend the A.PH.A. convention in Boston during August.

New officers of the **University of Tennessee Branch** are: Robert S. Bartlett, president; Rose V. Hickey, vice-president; Willard T. Chumley, treasurer; Ruby C. Reynolds, secretary.

Fifteen students and faculty adviser, Prof. W. R. Williams, from the **University of Connecticut Branch** attended the Fourth Annual Convention of Student Branches of the A.PH.A., Districts 1 and 2, at Temple University College of Pharmacy, Philadelphia, May 1, 1954. Those in attendance were: Biruta Zilmanis, corresponding secretary; Joan McNamara, last year's recording secretary; Lois Goralski, Delores Ducotey, Joan McMullen, Frances Drago, Wallace Leete, president of the Branch; Ray Coia, Roger Prokop, Carl Nickle, Hugo Nickse, Ray Yamachika, Bob Rogers, Richard Shellman, and Jim O'Brien.

LOCAL BRANCHES

Thirty-six were in attendance at the meeting of the **Northern New Jersey Branch** of the A.PH.A. on May 5 at which President Bert Morgovsky presided. Guest speaker of the evening was Dr. Mason Gross, provost of Rutgers University. Dr. Gross, "answer man" of the television program "Two for the Money," spoke on the preparation, technics, and production of the show and also discussed the possibilities of educational television. Officers installed at the meeting were: President, Bert Morgovsky; Vice-President, Larry Pesa; Secretary-Treasurer, Michael Iannarone; Publicity Director, John Voigt.

The April meeting of the **Philadelphia Branch** of the A.PH.A. was held on April 8 at the Philadelphia College of Pharmacy and Science. Guest speaker was F. Royce Franzoni, president of the A.PH.A. The subject of his talk was "American Pharmacy's Professional Voice."

Prior to the meeting, a dinner was held honoring the past-presidents of the Branch. Dinner speaker was John Weilburg, a member of the Executive Committee of the Medical and Pharmaceutical Information Bureau of New York, who discussed the activities of the Bureau.

Eighty-five members and friends were present at the meeting of the **New York Branch** of the A.PH.A. on April 12 at Fordham University College of Pharmacy. Dr. E. L. Wyndar, research director, Medical Center on Cancer and Allied Diseases, New York City, presented a talk on "The Experimental Production of Cancer with Tobacco Tar," which was followed by a considerable discussion period.

Dave Irvine, publicity chairman of the **Puget Sound Branch** of the A.PH.A., reports a record number of members and friends gathered June 1 for a Dutch lunch and a tour of the Ranier Brewery, Seattle, Wash.

Guest speaker at the May 11 meeting of the **South-east Wisconsin Branch** of the A.PH.A. was Dr. John F. Becker, resident in internal medicine and pulmonary diseases at the University of Wisconsin. His topic was "Hypertension and Drug Therapy."

New officers for the Branch have been announced as follows: President, Max A. Lemberger, Jr.; Vice-President, Ursula Heyer; Secretary, Eunice R. Bonow; Treasurer, Frank Kuskowski.

New Drug Promises Relief from Severe Pain

A new drug, already shown to be effective in controlling nausea, now promises to relieve pain in patients who no longer get adequate help from large doses of narcotics. The new drug chlorpromazine was found "useful" in such cases by five Illinois doctors who report on their findings in the *Journal of the American Medical Association.* They said 22 of 28 patients treated with chlorpromazine in addition to narcotics or sedatives, which had not helped alone, were given "satisfactory relief" from severe abdominal, bone, and nerve pain. Narcotics requirements also were reduced.

Reportable Communicable Diseases

The executive order No. 9708 of March 26, 1946, specifying reportable communicable diseases under the Public Health Service Act, was amended by President Eisenhower on May 28, 1954, to list the following diseases: Anthrax, Chancroid, Cholera, Dengue, Diphtheria, Favus, Gonorrhea, Granuloma Inguinale, Infectious Encephalitis, Leprosy, Lymphogranuloma Venereum, Meningococcus Meningitis, Plague, Poliomyelitis, Psittacosis, Ringworm of the Scalp, Relapsing Fever (louse-borne), Scarlet Fever, Smallpox, Streptococcic Sore Throat, Syphilis, Trachoma, Tuberculosis, Typhoid Fever, Typhus, Yellow Fever.

During the period, 1949–53, measles outnumbered all other communicable diseases in this country. The five-year median was 13,856 cases.

Zoonoses

•••••••••••••*from page 423*

and can be fatal. The disease is considered to be air-borne, but contamination from raw products from infected animals is believed possible.

Among the zoonoses, rabies is the affliction most commonly recognized by the general public. This is transmitted to man in about 86 per cent of the cases by dogs; 5 per cent by cats; 3.5 per cent by wild carnivorous animals, and 2 per cent by ruminants. Efforts to control this zoonosis are concentrated on the dog, and these include quarantine measures, vaccination of the dog population, and elimination of stray dogs.

In the programs to control the zoonoses, there must be a collaborative effort by veterinarians, physicians, and public health officials. The pharmacist, as a center for dissemination of information and as a supplier of necessary medication, is expected to cooperate in this field, as he does in all efforts to protect and improve the public health and welfare.

Letters

•••••••••••••*from page 388*

Opposes Longer Pharmacy Course (*Cont'd.*)

community. In this I do not think North Carolina is an exception.

It seems that since the retail pharmacists are the ones who will be most affected by such a change their views should be given consideration before this question is settled in favor of the five-year course. Pharmacy as it is practiced in the United States, is both professional and commercial. The advocates of the increased course indicate that the extra year would be utilized in more technical and scientific training. This being true, the only student who would benefit by the increased year would be the person who plans to do research, manufacturing, or enter the teaching of pharmacy. The student who enters retail pharmacy will still have to depend on the commercial side of pharmacy to supplement the professional department of his enterprise, as is the case now. Therefore, I can see no reason for the mandatory five-year requirement for a B.S. in Pharmacy.

North Carolina ranks 47th in the ratio of pharmacists to the population of the state. If the five-year requirement is adopted, I fear that we will never improve our position. I hope that the plan will be abandoned.

W. LATHAM WEST, President
North Carolina Pharmaceutical Association

[Editorial Comment on this Communication will be found on page 406.]

SUPPLEMENTARY A.PH.A. CONVENTION PROGRAM

Section on Pharmaceutical Economics

Section Officers: *Chairman*, Irving Rubin, New York, N. Y.; *Vice-Chairman*, Noel M. Ferguson, Houston, Tex.; *Secretary*, James W. Lansdowne, Indianapolis, Ind.; *Delegate to the House of Delegates*, Alvah G. Hall, Los Angeles, Calif.

FIRST SESSION: Wednesday, August 25, 1:30 p.m., Room 401

Chairman's Address, Irving Rubin
Secretary's Report, James W. Lansdowne
Appointment of Committees

Papers:

1. "What the Pharmacy Educators Expect from the Section on Pharmaceutical Economics," Noel M. Ferguson.
2. "Can the Colleges of Pharmacy Properly Train Men for Industrial Marketing Research Positions?," Arthur E. Foden.
3. "Are Cash Discounts Net Profits?," Robert V. Evanson.
4. "This Little Pill Went to Market," John A. MacCartney.
5. "The Employment and Training of Personnel," Harold W. Pratt.

SECOND SESSION: Thursday, August 26, 1:30 p.m., Ballroom Assembly

Joint Session with Section on Education and Legislation.

PROGRAM

Discussion of the impact of recent court decisions on the practice of pharmacy based on the address by Joseph H. Stamler at the Second General Session, Thursday Morning, August 26, in the Imperial Ballroom.

For balance of program, see Section on Education and Legislation, Second Session.

THIRD SESSION: Friday, August 27, 1:30 p.m., Bay State Room

Papers:

6. "Inventory Control in the Prescription Department," George L. Scharringhause, Jr.
7. "The Importance of Prescription Pricing," David D. Stiles.
8. "Current Trends in the Drug Trade," Paul C. Olsen.
9. "Present-Day Concepts of Accounting in Today's Retail Pharmacy," Francis C. Hammerness.
10. "The Role of the Dental Supply House in the Distribution of Dental Medication," Donald C. Brodie and Jeanette G. Yeazell.
11. "The 1953 Prescription Survey in Columbia, S. C.," J. E. Hunter, Jr.

Committee Reports
Unfinished Business
Election and Installation of Officers
New Business
Adjournment

BRIEFLY NOTED

COLLEGES

The visitation program conducted by the **Columbia University College of Pharmacy** with several pharmaceutical houses has proved so successful with upper classmen that the school has extended the plan this year to include sophomores. The entire sophomore class of 106 students visited the Hoffmann-La Roche Laboratories, April 1.

Alpha Psi, the newest chapter of *Rho Chi* National Honorary Pharmaceutical Society was established at the **University of Arizona** on March 26, 1954. Charter members are Arthur Upson, Lincoln Chin, William Brincko, Dolores Strittmatter, Harold Beller, Albert Beller, and Lowell Miller.

Students of **Rutgers University College of Pharmacy** will publish a semi-annual journal, the *Rutgers Apothecary*, to be issued in May and January. Named as first editor of the publication is Leroy A. Seftel, a junior, now serving as pharmacy news editor on the Rutgers University Newark Colleges student newspaper. Dr. Maurice Bender, assistant professor of biochemistry and pharmacognosy, is faculty adviser.

The annual **Southwestern State College School of Pharmacy** Alumni Luncheon was held on April 23, in the Skirvin Hotel, Oklahoma City. Leon Marriott of Bartlesville presided. Forty-eight persons were present including Southwestern State faculty, senior pharmacy students, and guests. The following were elected as new officers for 1954–1955: A. R. Maley, president; Lynn Henley, vice-president; and Clyde Miller, secretary-treasurer.

The 117th commencement exercises of the **Medical College of Virginia** were held May 30 to June 1 at the College, Richmond, Va.

Commencement exercises of the **Massachusetts College of Pharmacy** were held June 3 on the College campus, Boston, Mass.

Its *Golden Anniversary* "Seminar on Modern Pharmacy" was held at **Butler University,** Indianapolis, Ind., May 11–12. Dr. A. A. Harwood, chairman of seminar on modern pharmacy, presided. Among the speakers were Dr. D. B. Meyers who discussed "New Prescription Drugs," E. F. Brake of Butler University, whose topic was "New Prescription Techniques," and Dr. Robert P. Fischelis, secretary of the A.PH.A., who spoke on "Trends to Watch."

The **Ohio State University Development Fund** has announced receipt of a $200 gift from the Cleveland Alumni chapter of Rho Pi Phi to establish a new scholarship fund at the university. The scholarship will be awarded annually to a pharmacy student upon recommendation of Dean Bernard V. Christensen of the College of Pharmacy.

The Advisory Council of the Pharmaceutical Foundation of the **University of Texas** held its Spring Meeting at the Pharmacy Building on April 14. Newly elected officers of the Council are: chairman, T. Arthur Lambert; vice-chairman, Walter Kuntz; and Dr. Henry M. Burlage, dean of the College of Pharmacy, was re-elected as executive secretary.

Ninteen students at **Rutgers University College of Pharmacy** have been named to membership in Alpha Eta chapter of *Rho Chi*. They are: Charles R. Berman, George D. Comerci, Martin Daffner, John Jasaitis, Edward Ler Man, George Lordi, Sanford Putesky, Sanford Resnik, Bettylee Sandler, Martin Sassiver, Leroy A. Seftel, Fred Shuster, Joan Turkus, Donald Pricken, John V. Saenger, Paul Zanowiak, Stanley Michels, Martin Morris, and Robert Nash.

Tony E. Jones, secretary-treasurer of Nu Chapter of *Rho Chi* at the **University of Texas College of Pharmacy,** has announced the election of the following students: Jerry D. Harrison, Morris R. Hill, Willard R. Swaney, Jr., Merle W. Benjamin, Jr., Joe P. Tupin, Olivero Everett, Inge J. Lubasch, William B. Stavinoha, Homi H. Kavarana, and Vincent B. Christ.

Elected to honorary membership was Walter A. Adams of Forney, Texas, who has been active in pharmaceutical affairs for many years, having been secretary of the Texas Pharmaceutical Association as well as president of the AMERICAN PHARMACEUTICAL ASSOCIATION.

A demonstration of the potential uses of the newer, nonionic surfactants in pharmaceutical practice was presented by Prof. Anthony J. MonteBovi, bio-chemist of St. John's University, Brooklyn, at the Pharmacists' Spring Clinic which was held Wednesday and Thursday, May 12 and 13, at the **University of Buffalo College of Pharmacy.**

(Continued on next page)

more than pays for space

SALT LAKE CITY, UTAH. "The 'Benzedrex' display more than pays for the small space it takes. We used to sell a dozen in two weeks—they now move out in 4 or 5 days."

Glade C. Linebaugh

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double your sales of

BENZEDREX* INHALER

with the new display carton

(Council-accepted)

Smith, Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off.

Briefly Noted

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ASSOCIATIONS

Ira I. Schwarz of Newark, N. J., has been designated by the **New Jersey Pharmaceutical Association** the individual who has contributed most to organized pharmacy during the past year. Presentation of the Oscar Singer Memorial Award was made at the 84th Annual Convention June 27–July 1.

One of the highlights of the **New Hampshire Pharmaceutical Association's** spring meeting, held May 24 and 25 at the Hotel Carpenter, Manchester, N. H., was an address by A.PH.A. President F. Royce Franzoni. His topic was "American Pharmacy's Professional Voice."

The 72nd annual convention of the **Maryland Pharmaceutical Association** was held June 14–17 at the Commander Hotel, Ocean City, Md. Among the speakers were Robert L. Swain, who discussed "Merchandising our Basic Resources," Noel E. Foss, whose topic was "Pharmacy Tests and Pre-College Drug Store Training," Linwood F. Tice, who talked on "Pharmaceutical Education," and F. Royce Franzoni, who chose as his subject "The Little Things in Life."

The winners of the **American Heart Association's** second annual Howard W. Blakeslee Awards for outstanding reporting in the field of heart and blood vessel diseases are: Cathy Covert, medical writer, and Arthur Cornelius, chief photographer of the *Syracuse Herald-Journal*, for a series of ten articles on heart diseases; Clive Howard for his article, "Can Heart Disease Wreck Your Marriage?" and "American Inventory," for "The Mechanical Heart," a documentary television program, telecast on NBC-TV, originating from Harper Hospital, Detroit, on February 15, 1953.

MANUFACTURERS

Dr. J. F. Muller has been named assistant general manager of the Prescription Products Department of the **Borden Company's** Special Products Division.

"Conquerers of Yellow Fever," a painting of one of the great moments in medical history, has been presented to the Army Medical Service Graduate School in Washington by **Wyeth Laboratories.**

Parke, Davis & Co. has opened a new 25,000-square foot manufacturing laboratory and branch office in Caracas, Venezuela.

Harold N. Torkelson, hospital supervisor of the Western Division of **Schering Corp.,** has been appointed to the company's newly created post of sales training coordinator.

The **A. H. Robins Co., Inc.**, has received the award of the Richmond Public Relations Association for the best public relations program of 1953 on the basis of its sponsorship of the First Western Hemisphere Conference of the World Medical Association, held in Richmond in April, 1953.

The **Upjohn Company** has made a grant of $5,000 to Columbia University to support cancer research; Purdue University has received a grant for $5,000 to study the effects of structure on chemical reactivity; a grant of $3,000 was made to Tuskegee Institute for the continuation of research on the synthesis of drugs; and $3,600 went to the University of Wisconsin to study factors affecting the production of penicillin and other antibiotics.

Paul Gerden has been appointed general counsel of **Abbott Laboratories.**

Forrest Tell has been elected executive vice-president of marketing operations for **Eli Lilly and Co.** and chairman of the board of directors of **Lilly International.**

Harry Mallinson has moved from executive vice-president to president of the International Corp., and Walton M. Wheeler, Jr., Lilly secretary and general counsel, has been elected a vice-president of the parent company.

AT RANDOM

Prof. Leslie M. Ohmart of the Massachusetts College of Pharmacy, Boston, Mass., has been named by the American College of Apothecaries as the 1954 recipient of the J. Leon Lascoff Memorial Award. Presentation of the award will be made at the Annual Banquet of the A.C.A., which will be held August 23, in Boston, as part of its Annual Convention.

Lida J. Usilton, veteran venereal disease control worker, was awarded the William Freeman Snow medal for distinguished service at the American Social Hygiene Association's 40th annual meeting in New York on April 26.

Dr. Rolling D. Hotchkiss, discoverer of hitherto unknown factors in the development of resistance to antibiotics by the invisible organisms which attack man's health, was presented May 5 with the Commercial Solvents Award for Outstanding Research in Antibiotics during 1953 by the Society of American Bacteriologists at its annual convention in Pittsburgh.

Dr. Julian L. Ambrus, professor of pharmacology at the Philadelphia College of Pharmacy and Science, has been awarded an American Cancer Society research grant of $5,904 to finance studies of the white blood cells to learn more of their history and eventual fate.

sales have tripled

MIAMI, FLA. "Since we put up the display carton, our sales of 'Benzedrex' Inhalers have tripled. I feel that it is one of the most effective small-space displays that we have ever had."

Amos N. Mattison

double your sales of

BENZEDREX* INHALER

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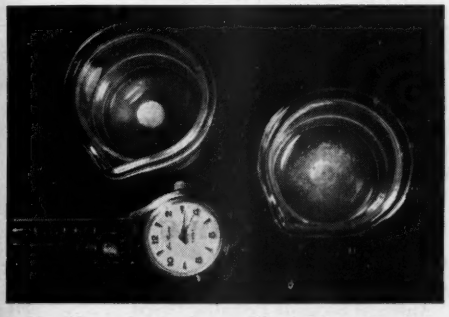
here's why your patient gets

3:15—Disintegration Test begins in actual stomach fluids (pH 2.7). Beaker at left contains ordinary enteric-coated erythromycin. At right is new *FILMTAB* ERYTHROCIN Stearate (Erythromycin Stearate, Abbott).

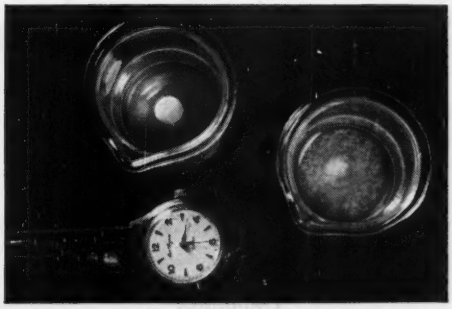
Earlier Blood Levels *from*

filmtab* ERYTHROCIN®

- DISINTEGRATES FASTER THAN ENTERIC COATING
- HIGH BLOOD CONCENTRATIONS WITHIN 2 HOURS

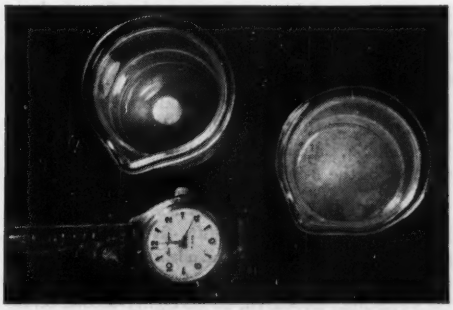


3:20—Five minutes later, *Filmtab** coating has already started to disintegrate. The tissue-thin film actually begins to dissolve within 30 seconds after your patient swallows tablet.



3:30—*Filmtab** is now completely dissolved. At this stage, ERYTHROCIN is ready to be absorbed, and ready to destroy sensitive cocci—even those resistant to other antibiotics.

3:45—Now the *Filmtab** tablet mushrooms out with all of the drug available for absorption. Note that enteric-coated tablet is still intact. Tests show that the new Stearate form definitely protects ERYTHROCIN against gastric acids.



4:00—Because of *Filmtab** (marketed only by Abbott) the drug is released faster, absorbed sooner. In the body, effective ERYTHROCIN blood levels now appear *in less than 2 hours* (instead of 4-6 hours as before). Abbott

*TM for Abbott's film sealed tablets, pat. applied for.

407150

"This is the ad your physicians are seeing on the new Filmtab ERYTHROCIN."

Calamine Lotion

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skin, complete compatibility with phenol, and good stability against sedimentation. It is felt, however, that the suspending and spreading quality may be improved by increasing the concentration of Tween 20 to 0.5 per cent, a value determined by subsequent trials. Duponal C and Aerosol OT were found to be unsuitable for use as wetting agents because of the tendency of the former to produce excessive foaming and of the latter to develop a somewhat objectionable odor in the product on standing. A product containing Kelgin and Tween 20 (7) was also acceptable.

The addition of a deflocculating agent, Darvan No. 1, to the above formula resulted in an improved stability against sedimentation without affecting other properties of the lotion. Another agent tested, Marasperse C, was incompatible with phenol.

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Obituaries

Dr. Fritz O. Laquer, internationally known scientist who helped isolate pure vitamin B_1 from yeast in 1931, died at his home in Philadelphia on May 29 at the age of sixty-five.

A professor of biochemistry at the Temple University School of Pharmacy since 1951, Dr. Laquer, who was born in Frankfort, Germany, was graduated from the University of Heidelberg in 1913.

He was a member of the AMERICAN PHARMACEUTICAL ASSOCIATION, the Physiological Society of Philadelphia, the Franklin Institute, and an associate member of the American Medical Association.

Frederick C. A. Schaefer of 205 Monitor Street, Brooklyn, for more than fifty-five years a retail pharmacist in Greenpoint and a leader in pharmaceutical organizations, died June 15, 1954, in St. Catherine's Hospital, Brooklyn, on his eighty-second birthday.

He was a former president and chairman of the Executive Committee of the New York State Pharmaceutical Association, a trustee of Brooklyn College of Pharmacy, former treasurer of the New York Veteran Druggists Association, Kings County and AMERICAN PHARMACEUTICAL ASSOCIATION, and German Apothecary Association.

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